The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

Vol. 130, No. 1 CHICAGO, ILLINOIS JANUARY 5, 1946

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PROTECTIVE SKIN COATINGS FOR THE PREVENTION OF SUNBURN

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In December 1942 the Council on Pharmacy and hemistry was approached by Col. Otis O. Benson Jr., . C., representing the commanding general, Army ir Forces, Matériel Center, Wright Field, Dayton, hio, in regard to the most effective protective subance for the prophylaxis of sunburn. The problem as as follows:

> The Matériel Center would like information on the most fective protective substance for the prophylaxis of sunburn. n essence, the problem is as follows:
>
> (*a*) Men marooned on life rafts or in the desert following rplane crashes for various reasons seem to lose a good deal of their clothing and are subject to severe solar exposure.
>
> (*b*) It has been definitely established that a protective subance (cream or ointment) to be stowed in life rafts and other mergency equipment in military aircraft is required, when he aircraft is operating in the southwest Pacific and Mediterranean theaters.
>
> (*c*) The requirement per seven-man life raft has been tentavely set at enough protective ointment to make four applicaons to at least 25 per cent of the body surface, for nine men. 'erhaps it might be better to consider four applications to 5 per cent of the body surface per man, with the necessity of ncluding seven to nine such units in a large airplane.
>
> The substance used must, of necessity, be nontoxic and might ven, on the other hand, be either bacteriostatic or bactericidal. urther problems are:
>
> (*a*) Maximum protection per unit weight and/or volume.
>
> (*b*) Maximum skin coverage per unit weight and/or volume.
>
> (*c*) Stability and freedom from rancidity of the substance o be used.
>
> (*d*) This substance should lend itself to simple packing, and f freezing were to occur at high altitudes, the container should not burst.
>
> (*e*) The protective substance is to be put up in suitable containers and stowed in life rafts, which, in turn, are in stowage compartments of the airplane and are jettisoned at the time of forced landing on water (or even in the desert).
>
> It is specifically requested that this inquiry not be published in any form in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.[1]
>
> Your cooperation and aid in this matter will be deeply appreciated.

It was decided to obtain the cooperation of the Lighting Research Laboratory of the General Electric Company, Nela Park, Cleveland. This laboratory, under the direction of Dr. Matthew Luckiesh, a world-wide authority on light and radiant energy, is ideally equipped to make quantitative spectral measurements and to elucidate any physical problems associated with compounds to be investigated. Unfortunately, in the past, the numerous preparations suggested for prevention of sunburn have been too often selected with little or no study or real attempt to see what the effect of the compound would be on the ultraviolet energy of various wavelengths that cause sunburn. Probably as serious an endeavor to answer this problem as can be found in the literature is the one by Bachem and Fantus.[2] They made spectroscopic studies of their individual compounds and then followed these up with limited biologic studies on the human body to analyze the protection of the preparations against exposure to the sun's rays. Their conclusions were that: 1. Wool fat, yellow petrolatum and diachylon ointment have the highest sun-screen value of the ointment bases tested. 2. Yellow petrolatum is superior to white petrolatum for protection against ultraviolet rays. 3. Titanium dioxide is the most efficient of the insoluble powders tested so far as sunscreen value is concerned. Calamine is also of value but is less efficient. 4. Ichthammol has a definite sun-screen value even in concentration as low as 2 per cent, and this may explain in part its therapeutic value. 5. Aesculin and menthyl salicylate are more efficient than is quinine oleate.

While this article was of definite value and gave some good leads, it did not present measurements of the absorption of energy of various wavelengths that cause sunburn. Spectroscopic studies may do this roughly, but a careful evaluation can be made only by quantitative measurements for various wavelengths of ultraviolet energy.

Erythema, or sunburn, as a result of exposure to natural sunlight is principally caused by ultraviolet energy in the spectral range 2,900 to 3,200 wavelengths. (These wavelengths are expressed in angstrom units.) Consequently any satisfactory protective cream should be highly absorbent in this spectral region. Another requirement is that the material shall not be easily washed off the skin.

Previous researches by Luckiesh and Taylor[3] show the relative effectiveness of certain lines of the mercury spectrum in the solar spectral region of special interest (table 1).

From the Lighting Research Laboratory, General Electric Company, Nela Park, Cleveland, and from the Department of Dermatology and Syphilology and the Department of Pharmacology and Experimental Therapeutics of Western Reserve Medical School and of the University Hospitals.

[1] Now that hostilities have ceased, the authors have been given permission to publish the results of their investigation

[2] Bachem, Albert, and Fantus, Bernard: Evaluation of Skin Protection Against Ultraviolet Rays, Arch. Phys. Therapy **20:** 69-76 (Feb.) 1939.

[3] Luckiesh, Matthew, and Taylor, A. H.: Erythemal and Tanning Effectiveness of Ultraviolet Energy, General Electric Review **42:** 274 (June) 1939.

In order to measure the spectral transmission of a thin film of specimens of protective material, a thin wedge was formed between quartz plates. In some cases it was quite difficult to obtain wedges free from air bubbles, which are more transparent than the test material. Heating the quartz plates before applying the material made it flow out better. Since some of these materials diffuse the transmitted energy, it was necessary to make the transmission measurements with fused quartz, ground on both sides, in front of the slit of the monochromator.

ARTICLES TESTED

After preliminary discussion with Dr. Luckiesh, it was decided to test out Harriett Hubbard Ayers' Sun Tan, titanium dioxide, phenyl salicylate, zinc oxide, petrolatum flavum U. S. P., amber petroleum jelly, petrolatum album U. S. P., unguentum zinci oxidi and Cuticolor titanium dioxide, which contains, in addition to the titanium dioxide, the ferric and ferrous oxides to add color to the compound.

For reference purposes these materials were assigned designation letters. The compositions of the various materials tested are given in table 2, and the transmissions of various thicknesses in table 3. Later, in view of the results with the several petrolatums, it was thought best to explore this angle more fully and through Mr. Trevor Holliday, president, Standard Oil of Ohio, the problem was taken up with Mr. F. H. Bedford Jr., Standard Oil of New Jersey, New York City. He forwarded for the study the following materials:

TABLE 1.—*Effectiveness of Mercury Spectrum*

Wavelengths	Relative Effectiveness in Producing Erythema and Tan
2,967	1.00
3,022	0.50
3,130	0.02
3,342	0.004
3,650	0.0012

Specimen O. Extra light amber petrolatum, Parmo number 1736.

Specimen P. Amber Parmo (petrolatum U. S. P.) number 2356.

Specimen Q. Dark Red Vet. Petrolatum.

Specimen R. D and R sun lotion, containing menthyl salicylate.

Specimen X. U. M. BM = C Petrolatum. (This was a dark, heavy petrolatum, too stiff to be used on the skin and therefore not tested.)

In addition, on suggestion of Prof. Paul Hanzlik, pharmacology department, Stanford University Medical School, a trial was made of:

Specimen S. "Sunex" Ointment (Abbott Laboratories, Chicago), containing butesin, metaphen and oleic acid ester amide diethylamine in cold cream. Professor Hanzlik stated that this compound is used quite widely on the deserts and mountains on the Pacific coast, with good results. He also mentioned petrolatum.

The transmission of ultraviolet energy of various wavelengths in the solar spectrum is presented in table 4 for specimens O, P, Q, R and S.

During the past seven years Luckiesh and Taylor have made many measurements of the ultraviolet in daylight in Cleveland, including a continuous integration of the erythemal ultraviolet energy. The maximum intensity measured in a four year period, occurring near noon, was equivalent in erythemal value to approximately 42 microwatts per square centimeter at wavelength 2,967.

In order to provide a greatly accelerated test of the protective creams, they used a clear-bulb type S-1 lamp without reflector. This source emits no appreciable energy shorter than wavelength 2,800. By means of quartz lenses, an image of the arc was projected onto a ¼ inch hole in a metal diaphragm. A quartz water-cell was placed in the optical path to absorb most of the heat in the beam. The energy passing through the hole was measured and found to be sixty times the erythemal value of the highest intensity of sunlight and skylight measured in the four year period. Thus one minute exposure to this source was equivalent

TABLE 2.—*Composition of Sunburn Protective Materials*

Specimen A	Gm. or Cc.
Titanium dioxide	20.0
Liquid petrolatum	10.0
Wool fat anhydrous	11.5
Petrolatum flavum	36.5
Water	22.0
Specimen B	
Titanium dioxide	15.0
Phenyl salicylate	5.0
Liquid petrolatum	10.0
Wool fat anhydrous	11.5
Petrolatum flavum	36.5
Water	22.0
Specimen C	
Titanium dioxide	8.8
Glycerin	1.5
Vanishing cream	23.0
Specimen D	
Phenyl salicylaate	3.0
Zinc oxide	10.0
Petrolatum flavum, q. s.	30.0
Specimen E	
Zinc oxide	10.0
Petrolatum flavum, q. s.	30.0
Specimen F	
Phenyl salicylate	3.0
Unguentum zinci oxidi	30.0
Specimen G	**Gm. or Cc.**
Cuticolor titanium dioxide	15.0
Liquid petrolatum	10.0
Wool fat anhydrous	12.5
Petrolatum (yellow)	37.5
Stronger rose water	25.0
Specimen H	
Petrolatum flavum	15.0
Specimen J	
Phenyl salicylate	1.5
Petrolatum flavum, q. s.	15.0
Specimen K	
Titanium dioxide	3.0
Petrolatum flavum, q. s.	15.0
Specimen L	
Phenyl salicylate	3.0
Zinc oxide	4.5
Petrolatum flavum	30.0
Specimen M	
Amber petrolatum jelly	
Specimen N	
White petrolatum jelly	

TABLE 3.—*Spectral Transmission of Skin Protective Preparations*

Specimen	Thickness in Mm.	Per Cent Transmission at Indicated Wavelengths				
		2,967	3,022	3,130	3,342	3,650
A	0.06	0.48	0.57	0.90	2.1	4.1
B	0.06	0.02	0.03	0.06	0.28	2.7
D	0.03	0	0	0	0.8	3.0
E	0.03	2.2	3.0	5.0	7.8	8.5
	0.06	0.18	0.3	0.75	2.2	2.4
F	0.12	—	—	—	—	0.05
G	0.07	—	—	0.23	0.89	2.8
H	0.03	21	27	38	—	—
	0.06	3.7	6.9	16	—	—
J*	0.03	1.8	1.6	1.1	9.7	25
	0.06	<0.1	<0.1	<0.1	0.3	6.5
	0.03	0	0	0	2.6	29
	0.03	6.8	5.9	5.1	18	35
	0.03	1.5	0.8	0.4	11	40
K	0.03	15	19	30	47	64
	0.06	4.[illegible]	6.8	13	—	—
	0.10	0.[illegible]	0.1	0.5	5.1	10
L	0.03	0.[illegible]	0.04	0.1	6	44
	0.06	0	0	0	0	0.3
M	0.03	5	8.6	21	52	75
	0.06	0.4	0.75	5.1	25	58
	0.10	0.3	0.04	0.18	4.9	24
N	0.03	6[illegible]	69	71	88	91

* Four different specimens from same lot. Variations apparently due to nonuniformity of mixture of the two ingredients.

to one hour of the most intense sunlight in Cleveland in a four year period. This was computed to be sufficient to produce a minimum perceptible erythema on average untanned skin in approximately eight seconds. The unprotected untanned skin of several subjects was exposed for fifteen seconds each to this intensity, and all developed some erythema from the exposure, most of them appreciably more than the minimum perceptible, thus confirming the energy measurement.

To provide the maximum protection it is desirable to have the protective coating so opaque to the erythemal region of the spectrum that a thin coating will give complete protection over many hours of continuous exposure. Most of our erythemal tests have been made with thin coatings, though some tests were made with thicker coatings, all on the upper arms of the subjects. Some detailed results of these tests are presented in table 5.

The terms "thin coating" and "thick coating" are rather indefinite as descriptive of the thickness of these creams, but the former indicates a coating which has been rubbed out quite well, corresponding to the thinnest coating which is likely to be applied.

WASHING EXPERIMENTS

Specimen C (titanium dioxide, glycerin and vanishing cream) and F (phenyl salicylate 10 per cent in unguentum zinci oxidi) wash off readily, and these are not suitable for the purposes desired. Harriett Hubbard Ayers' Sun Cream easily washes off the skin. Likewise R (D and R sun lotion) furnished by the Standard Oil Company of New Jersey, containing menthyl salicylate, is found to be easily removed from the skin by slopping water over it.

Table 4—*Percentages of Ultraviolet Energy of Various Wavelengths Transmitted by Four Specimens of Petrolatum and Sunex Ointment*

Specimen	Thickness, Mm.	Per Cent Transmission at Wavelengths				
		2,967	3,022	3,130	3,342	3,650
O	0.03	32	32	55	88	94
P	0.03	25	30	44	74	89
Q	0.03	0	0	1.8	16	58
R	0.03	13	16	23	56	71
S	0.04	26	31	43	—	—

All other preparations adhere well to the skin after water has been repeatedly slopped over them, and Q (dark red vet. petrolatum) adheres most tenaciously to the skin and is hardly removed with soap and hot water and scrubbing.

FREEZING EXPERIMENTS

It was not found feasible to test the various compounds at very low temperatures, but they were all placed in the freezing compartment of a refrigerator at — 3 F. for four days.

Specimens A and G contained titanium dioxide, liquid petrolatum, anhydrous wool fat, petrolatum flavum and water, and C contained in addition phenyl salicylate.

Microscopically before freezing they showed a rather uniform picture. After four days in the freezing compartment of the refrigerator the collapsible full tubes were covered with hoar frost and were stiff, and only after some twenty minutes at room temperature was it possible to express some of the contents for examination. Microscopically, with both low and high power, the field showed the uniform picture to have disappeared

Table 5—*Results of Erythemal Exposures to Determine Protective Qualities of Various Preparations*

Ultraviolet intensity of source equivalent to sixty times the most intense sunlight measured in Cleveland over a period of four years. One minute exposure to this source is equivalent to one hour of the most intense sunlight referred to, and about two hours of average midsummer noon sunlight in Cleveland.

Subjects B and H

No cream, 15 seconds' exposure, well above minimum perceptible erythema (MPE).
Cream A, thin coat, 15 minutes, very strong erythema.
Cream B, thin coat, 15 minutes, mild erythema
No cream, 30 seconds, strong erythema but less than cream A with exposure of 15 minutes

Subject F

No cream, 15 seconds, well above MPE
Cream B, thin coating, 15 minutes, very strong erythema.
Cream B, heavy coating, 20 minutes, no erythema except at edge of spot exposed, where cream was apparently scraped very thin against diaphragm
Cream D, thin coating, 15 minutes stronger than 15 second exposure without cream, slightly less than 30 second exposure without cream.
No cream, 30 seconds, strong erythema but less than cream B exposed 15 minutes.

Subject H

No cream, 15 seconds, moderate erythema, probably at least double or treble MPE
Cream G, thin coating, 15 minutes, erythema more than 30 second exposure without cream.
"Sun Cream," Harriett Hubbard Ayres' preparation, thin coating, 15 minutes, about same as 15 second exposure without cream.
No cream, 30 seconds, very strong erythema.

Subject W

No cream, 15 seconds, moderate erythema, approximately double MPE
Cream B, thin coating, 15 minutes, about same as 30 second exposure without cream
Cream E, thin coating, 15 minutes, somewhat stronger erythema than 30 second exposure without cream.
No cream, 30 seconds, strong erythema

Subject M

No cream, 15 seconds, MPE
Cream J, thin coating, 15 minutes, erythema only at one edge of exposed spot, probably due to cream being scraped off by edge of diaphragm
Cream J, thick coat, 20 minutes, no erythema
No cream, 30 seconds, strong erythema

Subject B

No cream, 15 seconds, moderate erythema
Cream J, thin coating, 20 minutes, less erythema than 15 second exposure without cream Apparently less inflammation and more direct tanning
Cream L, thin coating, 20 minutes, about same as 30 second exposure without cream
No cream, 30 seconds, fairly strong erythema.

Subject K

No cream, 15 seconds, fairly strong erythema.
Cream J, thin coating, 30 minutes, moderate erythema, but less inflammation than 15 second exposure without cream. Apparently some direct tanning
Cream L, thin coating, 30 minutes, slightly more erythema than with cream J.
No cream, 30 seconds, strong erythema
After 2 days all spots appeared to be about equally inflamed.

No cream, 10 seconds, strong erythema
Cream D, thin coating, 20 minutes, strong erythema.
Cream L, thin coating, 20 minutes, strong erythema
No cream, 20 seconds, strong erythema

To test further the relative merits of creams D, J and L, 3 subjects were given thin coatings of these three creams and exposed for 15 minutes each, with the following results

- No cream, 10 seconds
  - Subject B, strong erythema.
  - Subject F, no erythema
  - Subject W, moderate erythema.
- Cream D, 15 minutes.
  - Subject B, no erythema
  - Subject F, strong erythema.
  - Subject W, strong erythema, at least as much as 20 second exposure without protective cream
- Cream J, 15 minutes
  - Subject B, weak erythema, slightly greater than MPE, apparently some direct tanning
  - Subject F, mild erythema, very little inflammation, apparently some direct tanning.
  - Subject W, very faint erythema or tanning.
- Cream L, 15 minutes
  - Subject B, strong erythema, about same as 10 second exposure without cream
  - Subject F, some erythema, but less than 20 second exposure without protective cream
  - Subject W, very mild erythema, slightly above MPE
- No cream, 20 seconds
  - Subjects B and W developed strong erythema, but subject F developed only a moderate erythema.

and varying sized irregular "lakes" indicated that the water in the compound had separated from the mixture—rendering it less suitable for use and probably precluding the use of this type of a base, even if the preparation was found to be of value otherwise. Since these bases are of the so-called cold cream type ordinarily made up in pharmacies, their use would be contraindicated for any preparation selected, since the water would be laked out of the compound in freezing and there would no longer be the uniform character so necessary to screen off and absorb the ultraviolet energy.

The other preparations do not seem to change from use of the aforementioned temperatures. It is true that in collapsible tubes[4] the contents are congealed and require a little warming and manipulating before one is able to express them. None of the tubes showed evidence of bursting. It is a question whether this would be true at extremely low temperatures, particularly with preparations of the cold cream type.

Perhaps it would be advisable to use plastic containers because of the scarcity of tin. Glass containers should not be employed because of the danger of splintering in breakage.

Specimen Q is rendered much stiffer by freezing, but by sufficient manipulation and warming, such as it would receive in the tropics, it should lend itself well to application on the skin, even after it has undergone low temperatures from high altitude flying.

SPECTRAL TRANSMISSIONS

As previously mentioned, the only rays pertinent to this study are wavelengths 2,967 and 3,022. The percentages of ultraviolet energy of various wavelengths transmitted by the various protective coatings are given in tables 3 and 4.

Moreover, specimens A, B and G, containing titanium dioxide, may be immediately eliminated because of the tendency for the water to separate out on freezing. Specimens C (titanium dioxide in vanishing cream base), F (phenyl salicylate in unguentum zinci oxidi), Harriet Hubbard Ayers' Sun Cream and specimen R (D and R sun lotion) are eliminated at once because they are so easily washed from the skin.

As to the bases to be employed, freezing experiments have already shown that there should be no water in the compound. Unguentum zinci oxidi does not serve well as a base—it washes off too easily. Moreover, it contains white petrolatum, which is not a good screen. Comparison in table 3 of M (petrolatum flavum) and of N (petrolatum album) shows that the yellow petrolatum alone is eight to ten times as efficient a screen as is the white variety. Another specimen of petrolatum flavum, H, was apparently more refined and not such a good filter. Consequently, further investigation was made of petrolatum flavum samples O, P and Q, from Standard Oil Company of New Jersey (table 4). Both O and P, refined compounds, showed high transmission, 25 to 32 per cent, in the two wavelengths, but Q (dark red vet. petrolatum) was opaque to both wavelengths—in fact it was practically selectively opaque to the wavelengths causing sunburn.

Study of table 3 further reveals that, while titanium dioxide as used in specimens A, B, G and K acted relatively well in preventing transmission of wavelengths 2,967 and 3,022, it did not act as efficiently as phenyl salicylate (salol) in specimens D, J and L. With phenyl salicylate in D (10 per cent phenyl salicylate and 33⅓ per cent zinc oxide in petrolatum flavum) there was no transmission. In specimen J (10 per cent phenyl salicylate in petrolatum flavum) (five examinations) transmission varied from extremes of 6.8 per cent down to 0 at wavelength 2,967, with a mean of 1.5 per cent, and at wavelength 3,022 extremes of 5.9 per cent to 0 and a mean of 0.8 per cent. In specimen L (10 per cent phenyl salicylate and 15 per cent zinc oxide in petrolatum flavum) transmission in thickness of 0.03 mm. was 0.02 per cent at wavelength 2,967 and 0.04 per cent at wavelength 3,022. With a thickness of 0.06 mm. it was entirely zero. As zinc oxide also was present in D and L, the query might be raised as to its value. Phenyl salicylate was present in all these. Specimen E was 33⅓ per cent zinc oxide in petrolatum flavum and the transmission was very low, being 2.2 per cent at wavelength 2,967 in thickness of 0.03 mm. and 0.18 per cent in thickness of 0.06 mm. The transmission at wavelength 3,022 was 3.0 per cent in the thinner and 0.3 per cent in the thicker preparation. Undoubtedly, zinc oxide is not to be ignored as an ultraviolet light filter, and too it has the added advantage of showing where it has been applied. Luckiesh and Taylor have used it in paints for many years for the absorption of ultraviolet. From the standpoint of spectral studies, perhaps, it could be profitably added to a 10 per cent phenyl salicylate in petrolatum flavum—unless it would make the compound too thick and too dry, which would be the case if it was to be added to specimen Q as a base.

Specimen R (D and R sun lotion) containing menthyl salicylate in a thickness of 0.03 mm. gave spectral transmission of 13 per cent in wavelength 2,967 and 16 per cent in wavelength 3,022, while "Sunex" Ointment, Abbott Laboratories, in a thickness of 0.04 mm. gave an even higher transmission, 25 per cent at wavelength 2,967 and 31 per cent at wavelength 3,022. Obviously, both compounds are far too high to be of much value.

ULTRAVIOLET PROTECTION TO THE HUMAN SKIN OF VARIOUS COMPOUNDS

In these experiments of Luckiesh and Taylor on six different subjects there was used an ultraviolet source intensity equivalent to sixty times the most intense sunlight measured in Cleveland over a period of four years. One minute exposure to this source is equivalent to one hour of the most intense sunlight referred to and comparable to about two hours of average midsummer noon sunlight in Cleveland.

While nearly all the specimens were tried out, A, B and G may be eliminated from pertinent discussion because of the throwing out of the water contained in them after undergoing freezing. We may also eliminate C, suggested by Prof. Paul Hanzlik, and F, since they were readily removed from the skin by the washing experiments. Also Harriet Hubbard Ayers' Sun Cream and specimen R (D and R sun lotion), containing menthyl salicylate, are easily washed off. Specimen K (titanium dioxide in petrolatum flavum) was deleted because of the somewhat unsatisfactory results in the spectral transmission experiments. At least Luckiesh and Taylor did not deem it worth investigating further in actual erythemal tests in view of the experiments with A, B and G in which titanium dioxide was used. The results obtained with typical subjects for the various coatings are presented in table 5.

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[4] Mr. F. W. Treber, of the Miller Drug Company, Cleveland, furnished collapsible tubes and prepared the compounds in them for these experiments.

Specimen O (extra light amber petrolatum), specimen P (amber parmo [petrolatum U. S. P.]), specimen R (D and R sun lotion) and "Sunex" Ointment were not tested biologically because of their high spectral transmission for wavelengths 2,967 and 3,022.

The most interesting result in the entire series was the biologic test with specimen Q (dark red vet. petrolatum). The exposure of ten seconds on the subject, without any protection, produced a moderately strong erythema, while a twenty minute exposure produced no visible erythema when the same subject had a thin coating of the compound. This exposure was equivalent to twenty hours of the strongest sunlight in Cleveland measured during a four year period. It is quite evident that this petrolatum alone, with nothing added, would give ample protection to the skin. Moreover, the petrolatum rubbed into the skin of one of us several nights in succession gave no evidence of irritation. Dr. E. B. Hunn, chief chemist of Stanco Inc., reported that "the compound is a refined grade of petrolatum, nonirritating even to a sensitive skin. It is neutral in reaction and will conform to the U. S. Pharmacopeia test for freedom from alkali and mineral acids. It is also free from anthracene derivatives, as it is derived from a particular crude oil which is said to be essentially free of anthracene derivatives; and, secondly, any trace of such derivatives in the crude would be removed in the refining process which includes filtration of the product through fullers' earth."

Review of the foregoing data indicates that phenyl salicylate, which is present in D, L and J, apparently plays a great role in prevention of sunburn, for in cream J it is the only constituent added to the petrolatum flavum. In fact, better results are achieved with J than with D and L when zinc oxide is added, 33⅓ per cent in D and 15 per cent in L. Apparently the zinc oxide may even act as a deterrent to phenyl salicylate, for results are not as good as in phenyl salicylate cream. Perhaps the zinc oxide coats the phenyl salicylate particles.

COMMENT

It is obvious from the washing experiments that any compound selected must be of a character that will adhere quite well to the skin even though waves wash over the subject or even though he is occasionally immersed. This immediately ruled out all preparations in a vanishing cream base or so-called cold cream bases. It also deleted "Sunex" Ointment, D and R sun lotion, 10 per cent phenyl salicylate in unguentum zinci oxidi and Harriet Hubbard Ayers' Sun Cream. Specimen Q (dark red vet. petrolatum) satisfies this requirement admirably. It is very difficult to remove it even with soap and water and scrubbing.

Again, the compound must not be broken down by exposure to low temperatures—this almost at once eliminates all greaseless creams and ordinary cold creams with their water content.

The compound should be as simple as possible and, other things being equal, as easily procured and as inexpensive as possible. The dark red vet. petrolatum again answers these demands.

It should be packed in nonbreakable containers, which should not burst if frozen. Our lowest temperature experiments were —3 F., which did not break the collapsible tube containers of even cold cream base compounds containing water. With temperatures of —30 to —40 F., this might not be the case if there was water in the cream.

There are further essentials necessary in picking a suitable compound. The compound should not become rancid. The compound should lend itself to simple packing and, with the scarcity of tin, perhaps plastic containers would serve the purpose, though collapsible containers are preferable as the preparation would be kept clean and free from dirt, contamination and contact with sea water and sand.

The compound should be free from toxicity and, since phenyl salicylate has been found to be of value, the query arises as to its toxic properties and phenol absorption. For this purpose a 20 per cent phenyl salicylate in petrolatum flavum U. S. P. (i. e. twice the strength of the compound advised) was rubbed into the skin of the right half of the body, excluding the scalp, of 4 hospital patients whose blood urea nitrogen and urinalysis were normal. The unguentum was rubbed in the same region on four successive nights; no bathing was done during this time. Testing of the specific gravity for albumin and of the sediment microscopically was done on the urine after each of the last three applications of the salve; a blood urea nitrogen test was done the day after the last application. At no time did investigation of the urines show any evidence of irritation of the kidneys, nor was there any appreciable rise in the blood urea nitrogen. Ethereal sulfate determinations were made on twenty-four hour urine specimens on the last two days of the investigation. Dr. Ramon Hanzal of the Biochemistry Laboratory of the Institute of Pathology of Western Reserve University School of Medicine made these determinations to indicate the presence of increased phenol excretions. He employed the Folin method, and in none of the 4 patients was there a significant effect on the level of ethereal sulfates excreted in the urine.

The results of the physical and biologic investigations of Luckiesh and Taylor, along with clinical experience, allow certain deductions. The experiments show that titanium dioxide is not a very dependable protective agent, at least specimen K (20 per cent titanium dioxide in petrolatum flavum) did not indicate it in spectral experiments. And in biologic experiments specimens A, B and G, containing titanium, did not compare favorably with other less complex preparations. Zinc oxide is of definite value in preventing sunburn. Menthyl salicylate as tested in specimen R (D and R sun lotion) was not a particularly good agent, nor was "Sunex" (Abbott Laboratories—butesin, metaphen and oleic acid ester amide diethylamine in cold cream). Yellow petrolatum has dependable screening power against ultraviolet energy at wavelengths 2,967 and 3,022, in fact far more than more refined white petrolatum. Specimen Q (dark red vet. petrolatum, the Standard Oil Company of New Jersey) is opaque to these rays and likewise completely protected the skin of a subject to a dose of twenty minutes' exposure, equivalent to twenty hours of the strongest sunlight in Cleveland measured during a four year period. No doubt this simple compound may be employed alone in aviation and naval work as a satisfactory protection from sunburn. But in view of the excellent results with phenyl salicylate we are inclined to recommend that a Kit A be prepared with the dark red vet. petrolatum alone and a Kit B containing the dark red vet. petrolatum plus 10 per cent phenyl salicylate. Both should be tried out and comparisons made.

SUMMARY

1. Most of the erythema resulting from exposure to natural sunlight and skylight is produced by ultraviolet energy shorter than wavelength 3,200.

2. The Army Air Forces desired an agent or agents as a prophylaxis of sunburn. This protective cream or ointment to be stowed in life rafts or military aircraft must have maximum protection per unit weight or volume. It must be stable to heat and cold, free from rancidity, lend itself to simple packing, be nontoxic and not wash off.

3. Experiments were carried out at the Lighting Research Laboratory, General Electric Company, Nela Park, Cleveland, to ascertain the safest, most practicable, most cohesive, nontoxic agent or agents to serve this purpose.

4. Dark red vet. petrolatum (Standard Oil Company of New Jersey) was found to be quite opaque to erythemal energy. It likewise served as a complete protection to the skin in an exposure equivalent to twenty hours of the strongest sunlight in Cleveland measured during a four year period. This product in itself is recommended for the protection of aviators marooned on life rafts or in the desert following airplane crashes. The compound is not irritating and adheres tenaciously to the skin.

5. Phenyl salicylate (salol) was also found to be an excellent protection from ultraviolet radiation when put up in a 10 per cent cream. Experiments have also shown it to be nontoxic. It is further felt that a 10 per cent phenyl salicylate incorporated in the dark red vet. petrolatum be also tried as a suitable agent for protection of marooned aviators.

HEPATOLENTICULAR DEGENERATION

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Hepatolenticular degeneration is a rare, progressive and fatal disease characterized by extrapyramidal signs, degenerative changes in the basal ganglions, cirrhosis of the liver and pigmentation of Descemet's membrane at the limbus of the cornea (Kayser-Fleischer ring).

Denny-Brown[1] in a recent review of this subject has pointed out that the work of Hall[2] in establishing the identity of Wilson's disease (progressive lenticular degeneration) and Westphal-Strümpell's disease (pseudosclerosis) has obscured the remarkable differences between the two syndromes. There can be no doubt that the two groups are closely related and should be considered as aspects of the same disease process. To that extent Wilson's attempt to absorb pseudosclerosis into his group of "progressive lenticular degeneration" may have been justified. However, in the cases described by Wilson and most English and American authors the postural changes were prominent and cases with tremor and without postural changes were largely overlooked, although this group had been described by Westphal[3] and Strümpell[4] as "pseudosclerosis" (1883 and 1898). In 1912 von Hösslin and Alzheimer[5] demonstrated diffuse gliosis in pseudosclerosis and in 1909 and 1912 Fleischer[6] noticed the constant occurrence in pseudosclerosis of a golden brown pigmentation in Descemet's membrane at the limbus of the cornea and of cirrhosis of the liver.

Wilson[7] in 1912 published his classic paper, describing the constant association of cirrhosis of the liver with a progressive extrapyramidal disorder which included tremor, postural states, contractures, athetoid movements, rigidity, dysarthria, dysphagia and psychotic symptoms. Although such a description is wide enough to include the clinical features of pseudosclerosis, cases of the latter variety may present a picture far different from those described by Wilson, particularly in the lack of postural and contractural disorders. Wilson described a gross degeneration of the lenticular nuclei, obvious to the naked eye in his cases. This has been found in many cases involving a short course with contractures and postural difficulties. However, it has been well demonstrated that corresponding to the diversity of signs there are also variations in the pathologic manifestations of the disorder. Two clearly defined pathologic extremes exist, namely gross cavitation of the lenticular nuclei (progressive lenticular degeneration of Wilson) on the one hand and, on the other, only the microscopic gliosis described by Alzheimer in pseudosclerosis. Hall[2] in 1921 recorded an intermediate case in which both gliosis and gross lenticular degeneration were present. Hall made it clear that his proposed term of "hepatolenticular degeneration" should include all these variations.

Little is known of the etiology and pathogenesis of hepatolenticular degeneration, and relatively few cases have been investigated with modern methods. In the present study special attention was devoted to the hepatic features of the disease in the hope of gaining more knowledge of the mechanisms involved in the causation of the disturbance.

Certain dietary measures were felt to benefit these patients and are offered here as a therapeutic suggestion.

REPORT OF CASES AND DATA OF CLINICAL INVESTIGATION

Case 1.—N. R., a Jewish youth aged 18 years, of Russian parentage, was first seen for trembling of the hands in March 1944. He had been referred for psychotherapy, as the variability of the tremor suggested a psychogenic origin. Discovery of the Kayser-Fleischer ring led to the diagnosis of hepatolenticular degeneration. The patient's illness had begun insidiously with tremor of the hands about two years before he was first seen. He was a student of drafting and became first aware of clumsiness and incoordination in handwriting (fig. 1) and drawing, especially in his right hand. Gradually tremor of his arms appeared, complicated by a choreic component and jerky impairment of voluntary movements These symptoms dis-

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Drs. D Denny Brown, Raymond D. Adams, Stanley L Robbins, Stephen Maddock and Andrew Mason and Dorothy Rubanoff cooperated in this work

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[4] Strümpell, A. [illegible] udosklerose und über diffuse Hirnsklerose, [illegible] Deutsche Ztschr. f Nervenh 12: 115 149, 1898

[5] von Hösslin, C, and Alzheimer, A.: Ein Beitrag zur Klinik der pathologischen Anatomie der Westphal Strümpell'schen Pseudosklerose, Ztschr. f d ges Neurol u Psychiat 8: 183 209, 1911.

[6] Fleischer, B. Die periphere braungrünliche Hornhautverfarbung als Symptom einer eigenartigen Allgemeinerkrankung, München med Wchnschr. 56: 1120 1123, 1909; Ueber eine der "Pseudosklerose" nahestehende bisher unbekannte Krankheit (gekennzeichnet durch Tremor, psychische Störungen, bräunliche Pigmentierung bestimmter Gewebe, insbesondere auch der Hornhautperipherie, Lebercirrhose), Deutsche Ztschr f Nervenh. 44: 179-201, 1912

[7] Wilson, S A K: Progressive Lenticular Degeneration: A Familial Nervous Disease Associated with Cirrhosis of the Liver, Brain 34: 295-509, 1912

appeared during sleep, were hardly noticeable at rest and were greatly exaggerated by motion. The jerkiness of voluntary movements was also manifested in the lower extremities by an awkward, loose, flinging, tremulous gait. His speech became nasal and reflected awkwardness in voluntary movements of his tongue and accessory palatine musculature as well as tremor. He also complained of hypersalivation but never of rigidity. His emotionality increased, but there was no intellectual deterioration. Despite partial remissions, some of which lasted for several months, he had grown gradually worse.

The patient's parents were first cousins. The father died at the age of 40 of heart disease. The mother was living and well. She had a pes cavus on the left and no other deformities or diseases. There were 3 children in the family, all of whom had hepatolenticular degeneration (cases 2 and 3). There was no history of any neurologic disease in the direct or collateral ancestry except for an uncle (father's brother), who is said to have been unable to take pictures with a camera because of the tremor of his hands. The information available is limited and the family history is incomplete.

The past history revealed common childhood diseases and no history of brain involvement, jaundice or right upper quadrant pain. There had been episodes of "upper respiratory infection," often accompanied by abdominal distress and vomiting, usually of short duration and sometimes requiring bed rest. On all of these occasions there was anorexia for several days. The patient was born and spent his life in a well populated middle class section of the city. No toxic factors were discovered in the patient's surroundings. The family's diet at all times had been varied and made up of about 2,400 calories (carbohydrates 285 Gm., proteins 111 Gm., fat 91 Gm.).

Physical examination showed pronounced myopia and typical Kayser-Fleischer ring in Descemet's membrane of the cornea. Examination of the head and thorax was negative except for slight sinus arrhythmia and a soft systolic murmur at the apex of the heart. The right shoulder was slightly higher than the left. The abdomen was flat with the liver palpable one to two fingerbreadths below the costal margin in the right midclavicular line. The spleen was enlarged to percussion and its lower pole palpable below the costal margin. The genitalia were small for the patient's age, but the pubic hair was well developed and the testes, though small, were of normal consistency. There was a bilateral pes cavus.

Neurologic examination showed a friendly, tall, thin boy with a wide eyed staring expression. He was bright and alert but showed a striking pleasure in telling pointless stories in the middle of a clear and reasonable conversation. There was an overall motor restlessness with a choreiform element in the muscles of the face, arms and trunk. He was never physically or mentally relaxed. When he attempted to smile there resulted a jerky, wry grimace. Except for his wide eyed expression, his face showed nothing suggestive of parkinsonism. A gross rhythmic tremor with a rate of 4 to 6 per second was present in the arms under postural tension and, at times, involved the trunk. This tremor, in the upper extremities, was complicated by a choreic element. Active movements of the arms enhanced the tremor, and extension of the arms caused wide flapping movements of the hands at the wrist joints and rhythmic flexions of the fingers. Coordination in the arms was impaired by tremor and jerkiness, and, while the finger could be accurately approximated to the nose by a series of jerky movements, a gross tremor prevented its being kept in the desired position. At times there were mild dystonic movements of the trunk. Cogwheel rigidity was observed in all joints on passive motion. The motor signs were less pronounced in the lower extremities, where there was little resting tremor but some tremor of motion and sustention. Tremulousness and rigidity caused incoordination in the use of the legs and feet. This became most pronounced when the patient turned suddenly. His stature was erect with the patient appearing to lean slightly backward as if compensating for a propulsion component. The cranial nerves were not remarkable, but the speech was slurred and nasal. All tendon reflexes were weak, and the right patellar jerk and both achilles tendon jerks were absent. The response to plantar stimulation was flexor. The abdominal reflexes were active. Sensory examination was negative.

The diagnosis of hepatolenticular degeneration having been made, a high caloric diet rich in proteins and carbohydrates and poor in fat was prescribed and the patient was discharged. Exacerbation of the tremor accompanied by nausea and vomiting with anorexia lasting for two weeks during which the patient lost 6 pounds (2.7 Kg.) prevented him from ever starting to take his diet. Torsion spasms of the trunk to the right occurred; first once or twice a day, then every hour and, three weeks after discharge, at the time of readmission, continuously, at intervals of ten minutes, lasting five to ten minutes. The patient was well aware of these seizures, describing them as accompanied by complete loss of will power.

Physical examination was essentially unchanged, but the tremor was increased and lateral nystagmus was observed. There were headaches, and a defect of convergence was found. The liver seemed smaller than previously but within normal limits.

The patient was given a diet consisting of 733 Gm. of carbohydrate, 208 Gm. of protein and 22 Gm. of fat (3,692 calories) and within five days he gained 2½ pounds (1.1 Kg.). Torsion spasms and nystagmus disappeared. On the eighth day of this regimen the patient complained of right upper quadrant heaviness and pain, constipation, nausea, anorexia and vomiting, and he refused all food. There were headaches and weakness, and the patient insisted that this episode resembled the many he had had during past years and which had been called "colds" or "grip." Intravenous administration of amino acids in dextrose solution was necessary, but within a few days and with atropine to combat the nausea the patient was again able to receive his meals and improved steadily during one month. It became possible for him to perform several simple skilled acts which he had been unable to execute for months, such as cleaning his glasses and opening doors and windows. With his general health much improved and all liver function tests (except the cephalin flocculation) negative, the patient was seen fit to undergo a liver biopsy, which was performed by Dr. Andrew Mason under spinal anesthesia and following intravenous infusion of 100 Gm. of dextrose. The patient was given light food and in addition intravenous dextrose with amino acid mixtures as well as subcutaneous injections of synthetic vitamin K-like substance and thiamine, riboflavin, pyridoxine, calcium pantothenate and niacinamide. Urinary retention and intestinal atonia were relieved by catheterization and by physostigmine and enemas. Although no infection was detectable, the patient's temperature on the fourth postoperative day reached 102 F. With the white blood cell count, urine sediment and chest plate remaining negative, the temperature rose to 106.2 F. on the fifth postoperative day and the patient became comatose. Rapid intravenous infusion of 20 per cent dextrose brought the patient back to consciousness, but there remained a variable degree of stupor, inability to articulate and to swallow and a paralysis of the upward gaze. There was a progressive increase in the amplitude and frequency of the tremor, which subsided merely during short moments. As the coma which had responded

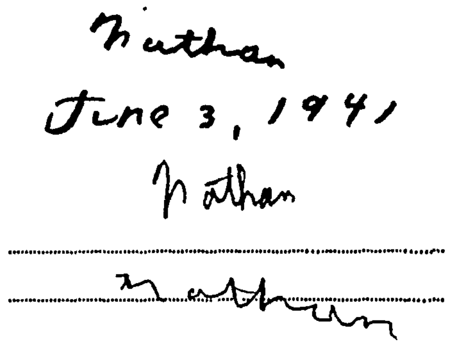

Fig. 1.—Samples of handwriting in case 1. From top to bottom: In 1941, no disease manifest; in 1944, when first seen; six months later.

so well to large doses of dextrose was interpreted as hypoglycemia due to liver failure, large amounts of amino acids, dextrose and vitamins were given and a continuous search was made for signs of infection. The liver function tests during this period (summarized in the table) did not significantly change except that the prothrombin concentration fell to 60 per cent of normal and the sulfobromophthalein retention became elevated twenty-four hours before death. About six hours before death pus was discovered in the urine, and subcutaneous sulfadiazine was given. Before this was done the patient seemed to rally and was able to talk. He began however to vomit repeatedly and to hiccup. During the night of the sixth postoperative day the patient suddenly vomited 1,000 cc. of dark guaiac positive material, aspirated a great deal of it and died twenty minutes later in respiratory distress. The clinical diagnosis of the immediate cause of death was rupture of an esophageal varix, brought about by the strain of repeated vomiting. The severe terminal episode may have been precipitated by the combination of depressed liver function as suggested by a decrease of the prothrombin concentration in spite of continuous administration of vitamin K and by bronchopneumonia which escaped clinical detection but was found at autopsy. The caloric intake of the patient in the postoperative period as charted in retrospect was too low and this with the administration of 1 grain (0.06 Gm.) of morphine in forty-eight hours may have been a precipitating factor.

Some Laboratory Data in Four Cases of Hepatolenticular Degeneration

		Urine Analysis			Liver Function Tests					Blood Chemistry			
					Sulfobromophthalein † Retention								
Case	Date	Urobilinogen *	Other Findings	Icterus Index	After 5 Min.[17]	After 15 Min.	Prothrombin Concentration, % of Normal[16]	Cephalin Flocculation[19]	Hippuric Acid (Oral)[17]	Total Protein[21]	Albumin[21]	Globulin[21]	Cholesterol[21]
1. N. R	3/16/44	Normal	None	4	100	5	80	++++	2 72	5 98	...	....	95
	8/23/44	Normal	None	5	40	Trace	100	++++	2.90	....	..	....	100
	9/20/44	....	None	7	50	0	100	++++	...	6 10	....	...	131
	10/ 2/44	Normal	None	6	20	0	80	++++ +++ ++++	3 40	....	...	....	129
	10/ 8/44‡	....	Some W.B.C.	8	80	20	60	++++	....	4.90	3 4	1 5	...
2. J. R.	8/23/44	Normal	None	6	..	..	.	++++	....	...	...	...	...
	10/ 3/44	Normal	None	..	30	0	100	++++	3 0	...	...	....	130
	12/27/44	....	None	..	35	5	100	+	1 66	5 56	3 23	2 33	131
	2/ 9/45§	....	None	5	30	Trace	60	+++	..	...	..	...	...
	2/12/45	....	......	..	..	..	85	+++	....	.	...	....	...
	2/16/45	....	None	..	..	..	100	++	....	...	....	....	...
	4/27/45	....	.....	..	45	5	70	+	2 2	5 9	...	..	...
3. M R.	8/23/44	... ...	None	5	30	Trace	100	++++	....	..	...	...	...
	11/ 1/44	Normal	None	..	30	10	100	+ +	...	5 3	....	....	149
	3/ 2/45	....	None	..	50	10	98	+++	1 80	...	..	..	...
4 I S.	7/ 8/44	....	Gran casts, W.B C, albumin +	7	100	30	90	+++	1 40	4 5	3 0	1 5	183
	8/22/44	Normal	Gran casts, W.B C, albumin +	..	40	0	70	++++	1.50	5 0	..	...	155
	1/27/45	......	Gran. casts, W.B C, albumin +	5	35	0	100	+++	1 70	...	.	....	...

* Concentration estimated in progressive dilutions by Ehrlich's reagent, compared to normal

† Sulfobromophthalein excretion (per cent of dye retained after 5 and 15 minutes following intravenous injection of 150 mg.).

‡ Twenty-four hours before death § Fifteen days after dental abscess.

Pathologic Examination.[8]—The following is a summary of the pathologic findings. The patient's brain has been sectioned serially and a subsequent communication will describe the details of the microscopic examination. The most conspicuous gross lesion in the sections was that illustrated in figure 2. The putamen of each lenticular nucleus was the site of multiple small cavities. Here nerve and glial cells had disappeared, leaving only scattered hypertrophied astrocytes. The globus pallidus on each side, the caudate nuclei and other structures appeared to be intact. Another lesion was found in the right middle frontal convolution, where large areas of the cerebral tissue showed evidence of softening. This was particularly pronounced in the convolutional white matter but also found in the cortex. In these regions the brain tissue had a gray, mottled appearance and the leptomeninges overlapping the softened zones were thickened. A section taken from this part of the brain showed a fairly complete necrosis of all nerve and glial cells in one convolution. These cells had disappeared, leaving only the proliferated endothelium of capillaries and veins and endothelial as well as microglial phagocytes. In adjacent convolutions the parenchymal damage was less severe. Although the architecture of the cortex was deranged, a fair number of nerve cells remained intact. Again the capillary endothelium had undergone hyperpla[illegible] were increased in number and showed [illegible] A fair number of large astrocytes could be seen. The only vascular changes were of the type commonly seen in reactions to necrosis. All blood vessels were patent.

The liver biopsy (six days before death) presented the same gross and microscopic appearance as did the liver at autopsy.

At autopsy the body was well developed and fairly well nourished and did not show obvious signs of chronic wasting disease. The only gross findings of significance were in the liver, lungs and gastrointestinal tract. The liver weighed 1,300 Gm. (a slight reduction in weight). The organ was considerably reduced in size, out of proportion to this slight reduction in weight. Externally the surface was diffusely and uniformly nodular with the individual nodules varying in diameter from 0 5 to 1 cm. (figs 2, 3 and 4). The color was in general a pale gray-brown with the depressed, fibrous scars standing out as paler gray or white strands of variable width. The organ cut with increased resistance to reveal a slightly more red cut surface in which the roughly spherical nodules were clearly demarcated. The fibrous trabeculae were of varying size and seemed to follow no uniform pattern. The gallbladder and bile ducts were all within normal limits. The same held true of the blood vessels. Although known to the pathologist, the site of the biopsy which had been taken six days before death could not be detected. The lungs weighed 800 and 580 Gm. on the right and left respectively (increased weight). The pleural surfaces were glistening, gray red, showing scattered subpleural 1 mm. petechial hemorrhages chiefly about the bases. On sections the lobes uniformly exuded copious amounts of serosanguineous fluid and showed similar petechial hemorrhages throughout the cut surface. The gastrointestinal tract was remarkable, as the stomach contained large amounts of red black semifluid material which gave a strongly positive guaiac reaction and was obviously changed blood. Examination of the esophagus and stomach failed to reveal either varix formation or ulceration, and the definite primary site of the hemorrhage could not be identified. (This unsatisfactory conclusion, as pathologists well know, is a not uncommon finding in cases of gastrointestinal hemorrhage.)

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[8] Dr. S. L. Robbins made the pathologic description and Dr. R. D. Adams the neuropathologic studies.

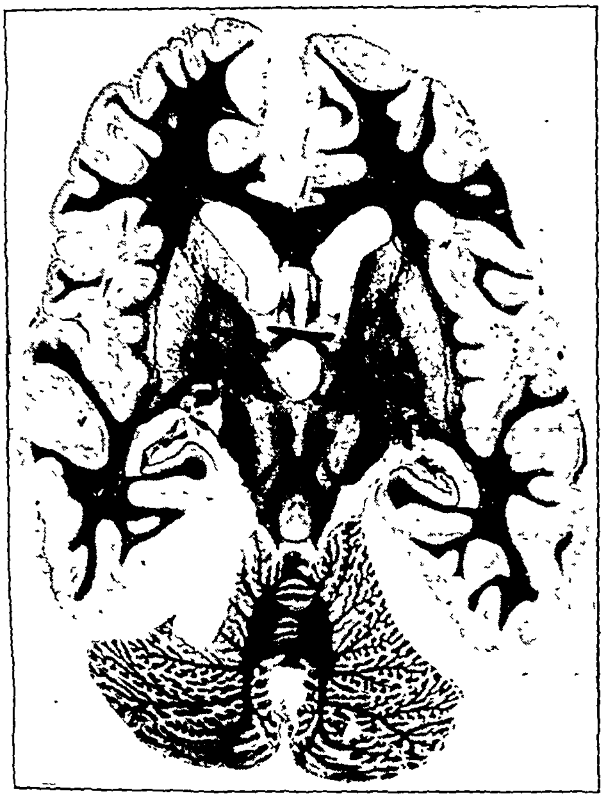


Fig. 2.—A section of the cerebrum cut in oblique plane approaching the horizontal. *Note* multiple small cavities in the outer segments of the lenticular nuclei. This cavitation is especially obvious when the lenticular nuclei are compared with the intact caudate nuclei. The globus pallidus on each side and other structures in subthalamus and midbrain are not altered grossly.

Microscopic examination showed the liver to be diffusely traversed by fibrous bands laid down in no apparent relation to the hepatic architecture, varying greatly in their width and cutting off nodules of liver parenchyma of variable size. In some cases the fibrous cords appeared to partition individual hepatic lobules, but in other areas the scarring appeared to involve many lobules. The fibrous bands assumed the width of a liver lobule in scattered areas and contained numerous proliferating bile ducts, scattered nests of viable liver cells and a moderate lymphocytic infiltration. There were widely scattered areas of apparent liver cell regeneration, but the great majority of the parenchymatous cells appeared to be fairly well preserved, conforming to the original architecture with no obvious signs of acute necrosis at present. The lungs, in addition to congestion and edema, presented early bronchopneumonia.

CASE 2.—J. R., a youth aged 18 years, Jewish, was the identical twin brother of the first patient. The initial symptoms began much earlier than in his brother but had remained comparatively mild. He had noticed some difficulty in handwriting ever since he first went to school at the age of 5 (fig. 6). There were also difficulties in other finely coordinated movements, such as holding a glass of water. The tremor was inconsistent and often imperceptible. It sometimes appeared at rest and was increased by a sustained motor activity such as squeezing one's hand. In March 1944 physical examination showed a corneal circumlimbar pigmentation similar to that seen in case 1. He also had bilateral pes cavus. His speech and gait were not remarkable. He had an inconstant, variable, rhythmic tremor of the hands greatly accentuated by sustained muscle tension. There was slight jerkiness in voluntary movements (fig. 6, handwriting). There were no pyramidal tract signs. The liver was within normal limits and the spleen was not palpable. There were no esophageal varices on roentgenologic examination. The patient refused to follow any dietary prescription and continued eating his regular diet, which con-

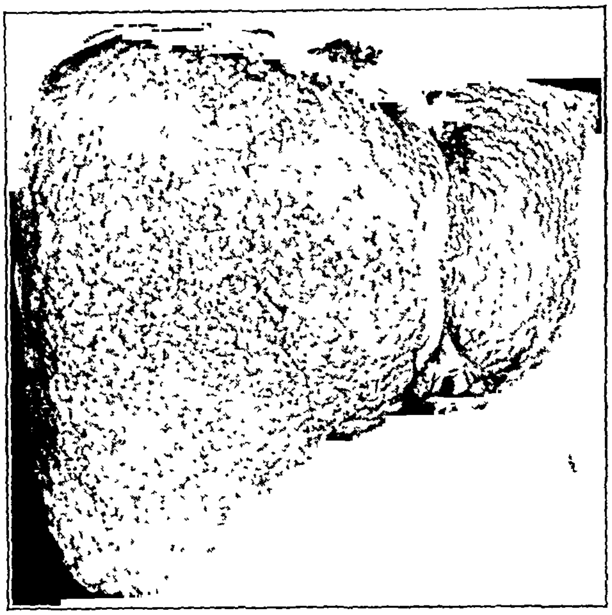


Fig. 3.—Gross appearance of the liver in case 1. External view of entire organ.

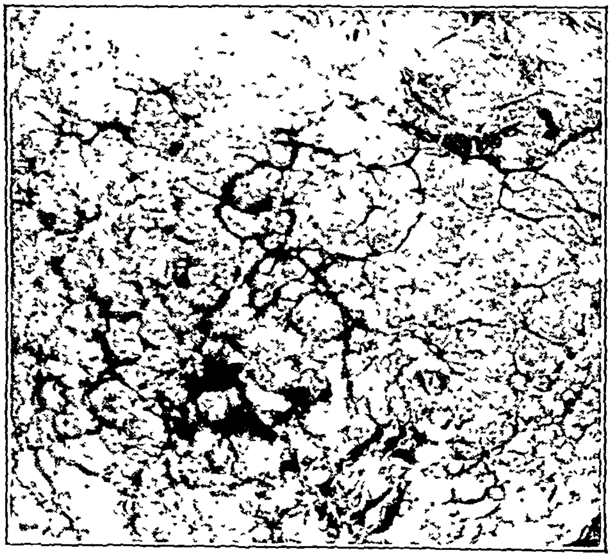


Fig. 4.—Close up of liver surface in case 1.

sisted of about 2,400 calories: carbohydrate 285 Gm., protein 111 Gm., fat 91 Gm.

Following the death of his twin brother the patient began to be concerned about his own condition and noticed a slowly progressive increase of his tremor, so much so that it became difficult for him to handle the copper plates in the printing shop where he worked.

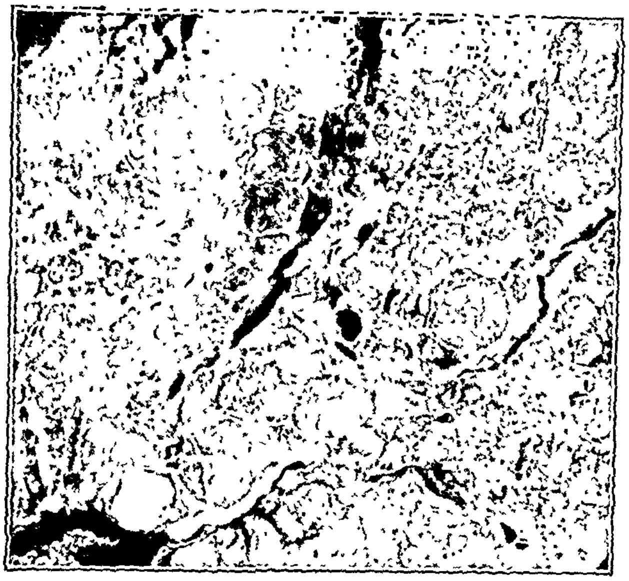
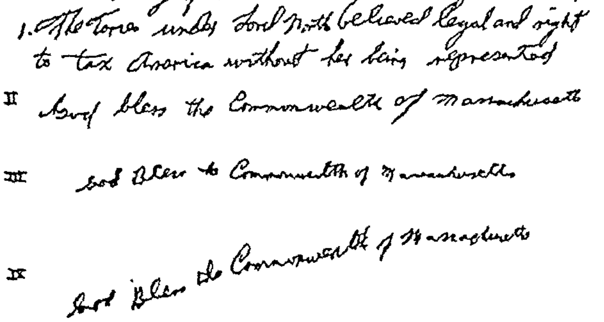


Fig. 5.—Cut section of liver in case 1.

In November 1944 his general condition was about the same except for a slight exacerbation of the tremor of the hands. The liver to percussion and palpation was somewhat smaller than previously, the edge being percussed 2 fingerbreadths above the costal margin in the right midclavicular line. The patient decided to start to take his diet regularly and, following a period of three weeks accompanied by some gastrointestinal difficulties, he succeeded in bringing his caloric intake to the desired level. His weight increased by 2 pounds (0.9 Kg.) in fifteen days. On January 25 he suffered from an infected tooth and had a temperature of 101 F. On extraction of the tooth and sulfadiazine therapy the infection subsided, but the patient remained anorexic and grew progressively weaker. During this time his food intake was definitely far below the desired level. On February 9 he was weak, irritable and pale. There was pronounced tremor of both hands even when at rest. Liver function tests are recorded in the table. It will be noticed that the cephalin flocculation was 3 plus and the prothrombin concentration 60 per cent. As the patient refused intravenous therapy, hourly feedings of carbohydrate and protein were begun in order to give him a daily caloric intake of about 4,000 calories. On February 12, after three days of ingesting 4,000 calories, the patient's mood was much improved and he had gained weight. Four days later he looked even better, stated that he felt hungry in spite of high caloric intake and his tremor was less noticeable. Liver function tests showed a prothrombin of 100 per cent and a 2 plus cephalin flocculation.



Policy of American Taxation by Parliament 1775
1. The Tories under Lord North believed legal and right
to tax America without her being represented

II God bless the Commonwealth of Massachusetts

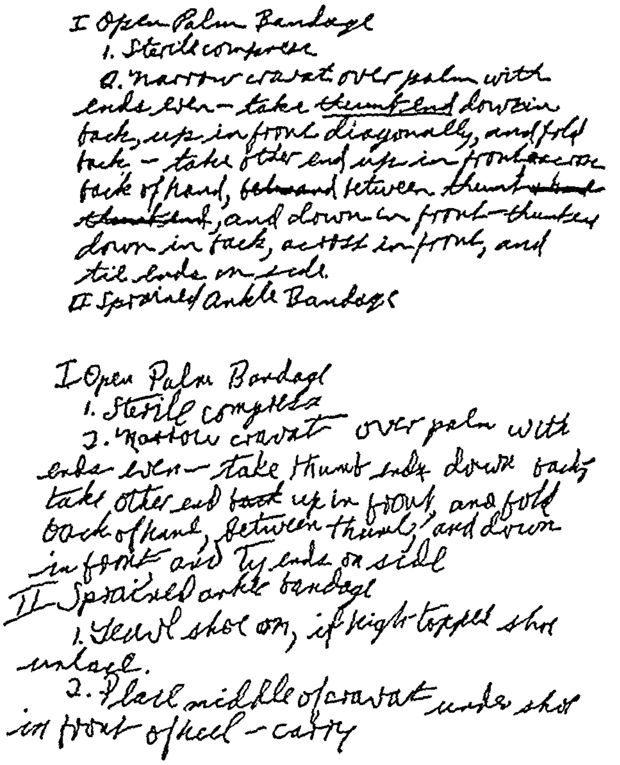
III God Bless the Commonwealth of Massachusetts

IV God Bless the Commonwealth of Massachusetts

Fig. 6.—Samples of handwriting in case 2: I, in 1942; II, February 1944; III, October 1944; IV, November 1944.

Case 3.—*History.*—M. R., aged 19 years, sister of the identical twins (patients 1 and 2), was an art student. In the last two years she had given up fine pencil drawing because of "stiffness" (rigidity) of the fingers. When emotionally disturbed or excited she developed a fine, rhythmic tremor of the hands and arms. She was extremely apprehensive and sensitive. Her menses had ceased abruptly at the age of 16.

Examination.—She too had a Kayser-Fleischer ring identical with those seen in her brothers. There was bilateral pes cavus. She was highly myopic and had a wild, staring expression. At times a fleeting rhythmic tremor was noted in her arms, exaggerated by sustention, like squeezing one's hand. There were suggestions of cogwheel rigidity in the upper extremities. There were no pyramidal tract signs. Her handwriting (fig. 7), while better than that of the second patient, also revealed some difficulty in coordination. Her liver was small but within normal limits, and her spleen was not palpable. Laboratory data are given in the table.



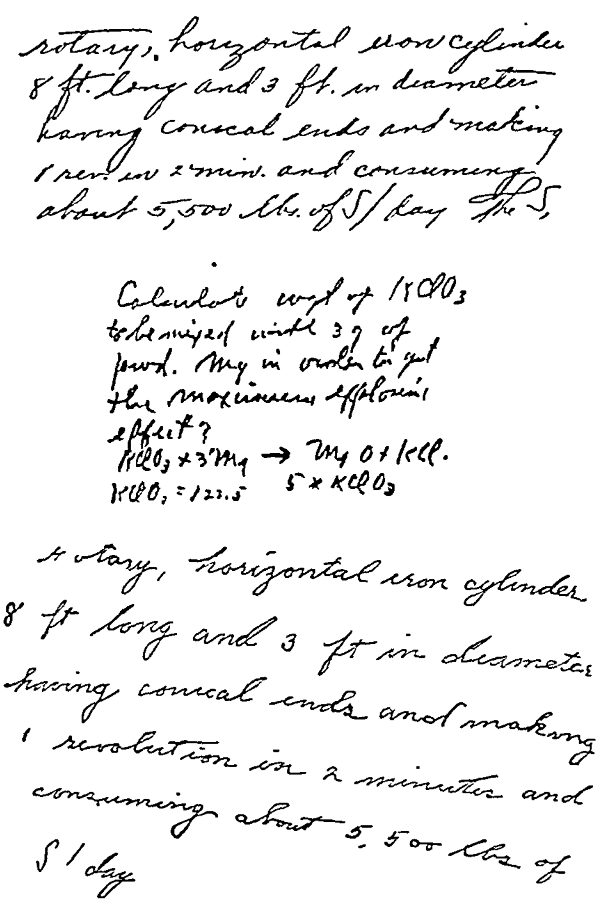
I Open Palm Bandage
1. Sterile compress
2. Narrow cravat over palm with
ends even — take ~~thumb end~~ down in
back, up in front diagonally, and fold
back — take other end up in front across
back of hand, ~~between~~ between ~~thumb and~~
~~thumb end~~, and down in front — thumb end
down in back, across in front, and
tie ends on side.
II Sprained Ankle Bandage

I Open Palm Bandage
1. Sterile compress
2. Narrow cravat over palm with
ends even — take thumb end down back
take other end ~~back~~ up in front, and fold
back of hand, between thumb, and down
in front and tie ends on side
II Sprained ankle bandage
1. Leave shoe on, if high topped shoe
unlace.
2. Place middle of cravat under shoe
in front of heel — carry

Fig. 7.—Samples of handwriting in case 3: at top, when first seen in 1943; at bottom, February 1944.

In October 1944 the patient began to suffer from a dry hacking cough, running nose and mild sore throat. With this coryza she noticed three times blood streaked sputum. Shortly thereafter the patient started vomiting several times and refused food during one day. She was admitted to the hospital. On admission, physical examination was the same as in February except that her tremor was coarser and more constant and her motor restlessness more pronounced. There was great emotional instability, and tears appeared on little provocation. Sustained movement of any group of muscles exaggerated the tremor in the muscle group examined. The handwriting showed more signs of difficulty than had previously been noticed (fig. 9). X-rays of the chest and esophagus were negative. The blood streaked sputum was ascribed to congestion of the frontal sinuses, which on x-ray examination showed thickened lining. The patient refused all dietary measures and persisted in leading a rather erratic life. She is getting gradually worse with increasing tremor and emotional instability. The Kayser-Fleischer ring is growing wider; liver function tests, however, have not significantly changed.

CASE 4.—I. S., a man aged 38, Jewish, a shipping clerk, admitted to the hospital because of tremor of his hands of eight years' duration, had consulted many physicians in the past and had been demonstrated variously as a case of postencephalitic parkinsonism or of multiple sclerosis. The peculiarities of the neurologic symptoms together with the presence of a distinct Kayser-Fleischer ring led Dr. Denny-Brown to diagnose hepatolenticular degeneration. The patient first noticed the tremor eight years before, when he began to spill fluids from glasses. Later in the course of the first year he broke pencil points and his handwriting began to disintegrate (fig. 8). His symptoms reached a maximum intensity within one month and had persisted ever since with a slight worsening in the year before admission. For about five years there had been mild albuminuria, discovered incidentally during an examination for life insurance. Although the patient was intelligent and observant, he stated that he had not had any gastrointestinal upsets, whereas the patient's wife, a nurse who had known him for five years, was positive that he had numerous attacks of constipation, nausea and anorexia followed by abdominal distress and sometimes diarrhea. He had had a diet high in spiced and fatty foods, rather low in carbohydrates and probably adequate in protein.



rotary, horizontal iron cylinder
8 ft. long and 3 ft. in diameter
having conical ends and making
1 rev. in 2 min. and consuming
about 5,500 lbs. of S/day The S,

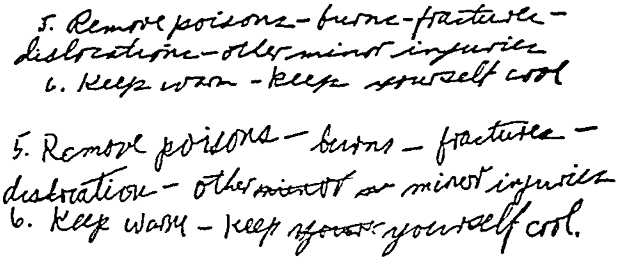
Calculate wt of $KClO_3$
to be mixed with 3 g of
powd. Mg in order to get
the maximum explosive
effect?
$KClO_3 + 3 Mg \rightarrow MgO + KCl.$
$KClO_3 = 122.5$ $5 \times KClO_3$

rotary, horizontal iron cylinder
8 ft long and 3 ft in diameter
having conical ends and making
1 revolution in 2 minutes and
consuming about 5.500 lbs of
S/day

Fig. 8.—Samples of handwriting in case 4: from top to bottom, 1931, 1938, 1944.

The parents of the patient were cousins once removed (fig. 10) and in another branch of the patient's family there had been marriage of cousins and mentally deficient male offspring in alternate generations. From the history of these relatives given by the patient it appears that infectious diseases or birth injury were unlikely factors. The uncertainty of the diagnosis, however, reduces the value of this observation. The patient has one half brother who is in good health. The patient had been working in a soap factory for a while, but the chemicals used there were not of the sort known to cause liver damage.

Physical examination revealed that the patient was thin, intelligent and cooperative. He did not appear to be in any distress. When he stood quietly and relaxed, no tremor was noticeable. The eyes showed a golden brown ring at the limbus of the cornea, and the fundus came into focus at 10 diopters. The liver was palpable about 2 fingerbreadths below the right costal margin in the midclavicular line. The spleen was found to be enlarged on percussion and was not palpable. X-ray studies of the chest, abdomen and esophagus were negative.



5. Remove poisons - burns - fractures -
dislocations - other minor injuries
6. Keep warm - keep yourself cool

5. Remove poisons – burns – fractures –
dislocation – other ~~minor~~ or minor injuries
6. Keep warm – keep ~~your~~ yourself cool.

Fig. 9.—Samples of handwriting in case 3: at top, in 1943; at bottom, November 1944 at time of admission to the hospital.

The neurologic examination was negative except for the following findings: The patient's speech was somewhat blurred, slow and hesitant, with a nasal note. His tremor was not noticed as long as he stood quietly at rest. When he extended his arms before him the hands flapped at the wrist in gross rhythmic tremor. When the arms were flexed at the elbow and held before the patient the arm became involved with an involuntary gross movement in which the humerus rotated at the shoulder and the forearms flailed up and down. There was a coarse, arrhythmic intention tremor, but it was most pronounced at the point of completion of the intended action, so that on putting his finger on his nose the patient hit the object, but immediately the tremor threw his hand up to his forehead or down below his chin. Alternating movement of the fingers could be performed with the arms supported, but as soon as the arms were left unsupported fine movements were made impossible by the tremor. The patient was hospitalized for a short period for liver studies and was discharged on the 12th of July 1944 on a diet similar to that given to patient 1 but adjusted to a total of about 3,000 calories. He has taken it religiously ever since. It represented for him a great change in eating habits and at first was difficult to get used to. After two months the patient spontaneously reported an improvement in his general condition and a feeling of well being. He felt that his tremor had diminished to some extent. After three months he stated that for the first time

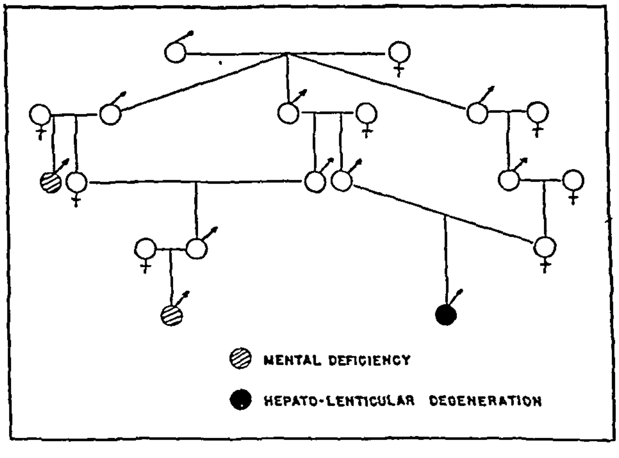


Fig. 10.—Intermarriages and occurrence of degenerative diseases in ancestry of patient 4.

in eight years he could manage to shave. Also for the first time since the onset of his symptoms he was able to fold garments which were manufactured at his place of work into the prescribed shape. The patient is intelligent and has a critical attitude toward the medical profession. Suggestion of improvement in this case seems unlikely. He and his family deny previous remissions. The laboratory studies of the case are reported in the table.

COMMENT

Neurologic Aspects.—The differential diagnosis of hepatolenticular degeneration is of special interest to neurologists. It is striking that many of the cases reported as such were undiagnosed initially and were confused with other conditions.

The diagnosis of hepatolenticular degeneration should be considered in every case of tremor or postural disorder in a young person. The pigmented circumlimbar corneal ring of a golden color is seen in hepatolenticular degeneration and may be considered pathognomonic. Several cases with absence of the Kayser-Fleischer ring have been reported in the literature, and in some instances special measures were necessary to visualize the ring.[9] In most of these cases no postmortem examination had been done, so that the diagnoses remain unproved. On the other hand Hall [2] found the corneal pigmentation present in 20 of 25 proved cases, and unless cirrhosis of the liver can be demonstrated the pigmentation remains the one certain positive clinical sign. Although the presence of the ring is pathognomonic, its absence does not conclusively rule out hepatolenticular degeneration. As Wilson [7] has stressed, the diagnosis should depend on the neurologic evidence of lenticular disease.

The rhythmic tremor, which may be present in repose but not in full relaxation, is brought out or exaggerated by sustained muscular tension rather than by movement. In addition there may be any or all of the other signs of disease of the basal ganglions, chorea, athetosis, dystonia. There are often striking emotional disturbances which may misdirect an examiner toward purely psychiatric considerations.

The most common error in diagnosis is that of mistaking these cases for postencephalitic parkinsonism. This is not surprising, as there are many points of similarity. The rhythmic tremor is qualitatively similar and may be indistinguishable. Emotional disturbances are common in both, but outright oddities of behavior are not a usual part of hepatolenticular degeneration. The plastic rigidity may be identical. The posture of parkinsonism may be seen in Wilson's disease. The resting or latent tremor of hepatolenticular degeneration is exaggerated by motion and sustention while the tremor of parkinsonism is decreased by activity and effort. In general the tremor of parkinsonism is more prominent in the fingers than in the wrist. The signs of postencephalitic parkinsonism develop rapidly and then remain stationary, whereas those of hepatolenticular degeneration are more often progressive. In both disorders there is rarely any pyramidal tract involvement. In some of Wilson's cases the destruction of the lenticular nucleus was so extensive as to impinge on the internal capsule and produce some pyramidal tract signs. The differentiation of postencephalitic parkinsonism and hepatolenticular degeneration may present extreme difficulties.

The disease may be differentiated from choreoathetosis by the fact that the latter disorder is usually associated with hemiplegia and rarely with a parkinsonian tremor. Multiple sclerosis is distinguished chiefly by evidences of remission and asymmetry of signs. In cases in which these features are absent, when optic atrophy is lacking, the peculiar flapping tremor at the wrists and the corneal pigmentation form the chief differentiating characteristics. The possibility of pseudobulbar palsy may be suggested by dysarthria and difficulty in swallowing. However, the presence of pyramidal tract signs and absence of tremor of the extremities are unusual and are against hepatolenticular degeneration. Some cases have been misdiagnosed catatonic schizophrenia and were not recognized until autopsy. It would appear from the foregoing that the signs of organic disease should exclude any consideration of purely functional disorders. Yet many cases, including case 1 in this paper, have been erroneously diagnosed as psychoneurosis.

In general, differential diagnosis of hepatolenticular degeneration is not difficult if it is kept in mind whenever one encounters a case of tremor or postural disorder in a youth. The clinical diagnosis must be based on the neurologic features because there is seldom clinical or laboratory evidence of distinctive liver disease. Direct visualization and biopsy of the liver, as in one of our cases, is conclusive. In this case, however, it proved to be a dangerous procedure.

Medical and Biologic Aspects (comments and interpretation of laboratory studies).—The presence in hepatolenticular degeneration of cirrhosis of the liver at autopsy is a constant feature. The extent of the hepatic lesions found at postmortem usually is far more impressive than would have been anticipated from the symptoms. Liver function tests usually fail to show hepatic dysfunction in spite of the advanced anatomic changes (Walsh,[10] Lüthy,[11] Barnes and Hurst [12]). Sweet, Gray and Allen [13] showed that some of the modern liver function tests are sensitive enough to demonstrate hepatic damage in these cases in the absence of hepatic symptoms. They have also reviewed the evidence that hepatic damage precedes the neurologic manifestations.

The value in hepatolenticular degeneration of the routine procedures used for the demonstration of liver disease was investigated. Sweet, Gray and Allen had found the serum colloidal gold test to be the most sensitive reaction. In our hands this test was reliable in a series of cases of cirrhosis of the liver and acute hepatitis. It was found, however, negative in cases of hepatolenticular degeneration. It should be noted that the diagnosis of some of the cases of Sweet, Gray and Allen was by no means conclusive and that the colloidal gold solutions used in this hospital are prepared according to Merritt and Fremont-Smith [14] in a way slightly different from that indicated by Gray.[15] For these reasons it seems impossible to draw any conclusions from these contradictory results in a small group of cases.

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The liver function tests (recorded in the table) were done by the surgical research laboratory of the hospital and the technics used were those described by Quick[16] for the prothrombin time, White, Deutsch and Maddock[17] for the sulfobromophthalein excretion test, Quick[18] for the hippuric acid synthesis test and Hanger[19] for the cephalin flocculation test. Intravenous glucose tolerance tests were performed according to the technic of Lozner and his associates,[20] and other laboratory methods used were those described by Peters and Van Slyke.[21]

The glucose tolerance tests were repeatedly normal in all of the cases. Of all the liver function tests the cephalin flocculation test alone either varied along with the changes in the patient's condition (cases 2 and 3) or remained consistently positive, thus indicating liver disease which was undoubtedly present. The remaining liver function tests showed either normal values, insignificant deviations from the normal or inconsistent changes. This picture of liver function tests was especially striking in case 1, in which at the time of liver biopsy which revealed extensive anatomic damage (figs. 2, 3 and 4), none of the tests, except the cephalin flocculation, indicated any damage. This shows that liver disturbance in this disease may be present and developed to a high degree and still may remain unrecognized. Thus one argument of those who think the neurologic disturbance to be the primary factor because no liver damage is sometimes evident prior to the appearance of neurologic signs loses its value. The terminal changes of the liver function tests in case 1 and their behavior during an infectious episode in case 2 are presumptive evidence that the liver disorder in this disease varies in intensity and is subject to exacerbations in times of functional stress. In the literature no member of a family suffering from the disease has developed nervous lesions at a time when cirrhosis has been definitely proved to be absent, whereas there are a number of cases on record in which one sibling has been found to have cirrhosis without nervous lesions.

Experimental evidence points to the liver as the organ primarily involved and perhaps responsible for the lesions of the central nervous system. Although Graef, Negrin and Page[22] have observed cirrhosis of the liver following the causation of hypothalamic lesions, they argue that the mechanism may be an indirect one through changes of feeding habit. Whether this may apply to patients with Wilson's disease remains doubtful. The work of Kallo and Oberling,[23] who have produced liver changes through lesions to the lenticular nuclei, has never been repeated and their evidence is not conclusive. On the other hand, Mahaim[24] produced central nervous lesions in dogs by causing severe hepatic damage by the injection of 50 per cent alcohol into the biliary tract. The cerebral lesions were observed thirty to eighty days following the causation of the hepatic damage and were "intense lesions of the nerve cells with slight predominance for the cortex and particular vascular and neurological lesions in the central nuclei of the thalamus and the caudate nucleus" (translated). Kirschbaum[25] obtained similar lesions in the brain of one dog which survived ligation of the hepatic artery for ninety days. Crandall and Weil[26] demonstrated in vitro a substance in the serum of dogs with experimental hepatic lesions that was causing damage to the myelin sheaths of rats' spinal cords when these were incubated for twenty-four hours at 37 C. in such serums. The serum of the same dog was inactive in this respect prior to liver lesions. We were unable to obtain any clearcut results when spinal cords of rats were incubated in the serum of our patients. Pathologic evidence shows that liver disease can cause brain lesions (Scherer,[27] Schaltenbrand[28]) and in hepatolenticular degeneration the clinical impression[13] points in the same direction.

The few facts known about the pathogenesis of hepatolenticular degeneration suggest the liver as one important factor. Observation of our patients showed that exacerbations followed or were accompanied by periods of low food intake and gastrointestinal distress. On the other hand all remissions observed followed periods of high food intake. These facts lead to the use in these patients of high caloric diets low in fat (4,000 calories, 3,000 derived from carbohydrate, 600 from protein and 400 at the most from fat). Such diets have recently been given in this disease by Wollaeger and Shands,[29] but these authors report no observations on the effects of this treatment in their patients, Dimitz and Vujić[30] had reported some success in 1925 from a high caloric, meatless diet. Obviously the effects of such dietary measures in a chronic neurologic disease are hard to evaluate and, as liver function tests sometimes vary even in untreated patients, they are of little help. Furthermore, one cannot expect a reversal of clinical symptoms due to irreparable anatomic damage of the central nervous system. Final evaluation of any therapy is possible only after a period exceeding the average life expectancy of such patients, and some presumptive evidence could be gained if a previously slowly progressive course could be arrested for a period lasting longer than any previous remission. Detailed metabolic studies which are in progress also might bring a better knowledge of the nutritional aspects of the disease. In the 3 treated patients of this series who were under observation for two, six and ten months respectively while taking diets, as described, clinical observation alone (in the absence of any measurable data) suggested that they all got somewhat better and that their neurologic disturbances became stationary and certainly in 1 case (4) improved somewhat. The dietary measures appeared to be of help in shortening setbacks associated with minor infections.

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CONCLUSIONS AND SUMMARY

1. Four cases of hepatolenticular degeneration (1 with biopsy of the liver and autopsy, 2 in siblings of this patient) had all been previously misdiagnosed as either parkinsonism, psychoneurosis or multiple sclerosis.

2. Laboratory studies disclosed that the cephalin flocculation test alone of all liver function tests performed was positive in the majority of cases, whereas the hippuric acid synthesis, sulfobromophthalein excretion and the prothrombin time were often not significantly altered even in the presence of pronounced anatomic liver changes. Positive liver function tests in periods of functional stress indicated the capricious type of liver disease, with periods of detectable impairment of function alternating with periods of functional adequacy.

3. In these cases, where exacerbations were related to periods of inadequate diet, remissions followed periods during which the patients had been taking high caloric diets relatively low in fat. In 1 patient the first remission in eight years occurred after institution of such a diet.

MALARIA THERAPY IN SYPHILITIC PRIMARY OPTIC ATROPHY

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Indianapolis

Malaria therapy, according to Moore and Woods,[1] is the most efficacious method of treatment of primary syphilitic optic atrophy. This therapeutic study of the Johns Hopkins group, done with the greatest accuracy and comprising 250 patients, has no equal in the literature. Others[2] observed similar gratifying results with the use of malarial fever.

In the opinion of Kierland and O'Leary[3] malaria treatment is also superior to Swift-Ellis therapy in the control of failing vision due to syphilis. The abandonment of intraspinal therapy is advocated because of its tendency to extinguish vision suddenly in 10 per cent of patients so treated.[4]

There are no comparable large and well studied groups of patients with syphilitic optic atrophy who were treated with artificial fever. In the small series of patients who were subjected to hyperpyrexia by Menagh[5] and Neymann[6] the percentage of visual improvement appears to be lower than in the malaria treated patients with optic atrophy.

PATHOGENESIS OF PRIMARY SYPHILITIC OPTIC ATROPHY

It is difficult to understand, at first sight, why malaria therapy should be useful in syphilitic optic atrophy, which has generally been looked on as a degenerative process. In the past there have been many misconceptions as to this condition, first of all, that syphilitic optic atrophy is just another variety of the tabetic process. This idea had early led to the designation of "tabetic optic atrophy," a term which should be discarded in favor of "primary syphilitic optic atrophy." To the clinician it has been a long established fact that so-called tabetic optic atrophy is not confined to tabetic patients but occurs not infrequently in dementia paralytica, in meningovascular syphilis and even in syphilitic persons who never had and never will develop any sign of tabes.

Moore and Woods[4] made the important observation that there is no significant difference in the prognosis of treated or untreated optic atrophy, whether this condition is associated with any of the three main types of neurosyphilis or whether it occurs as an isolated symptom in an individual with syphilis. From the clinical facts only they concluded that there is probably also no difference as to the pathology and the pathogenesis. In this conclusion I concur after having examined microscopically in the past fifteen years the visual pathways of 70 patients with all types of syphilis of the central nervous system. Of these, 10 had complete syphilitic optic atrophy and 2 had unilateral optic atrophy. Others had optic nerve changes ranging from the earliest lesion to far advanced atrophy but still leaving the patient with some useful vision. In another group the optic nerves were normal.

From the study of this large anatomic material it became apparent that primary syphilitic optic atrophy is due to a chronic inflammatory process followed by degeneration of the nerve fibers. Infiltrations, composed of lymphocytes and plasma cells, extend from the periphery along the septums toward the interior, producing first marginal degeneration of the optic nerves. On the perimeter this manifests itself in a concentric and slowly advancing narrowing of the visual fields. In other instances of optic atrophy the entire diameter or large irregular sectors of the optic nerves become involved at once by the inflammatory process. The principal site of the exudative features is in the intracranial portion of the optic nerves or in the chiasm or both and is dependent on a varying degree of syphilitic basilar meningitis. From here the atrophy of the visual nerve fibers proceeds in both directions. The essential lesion in the interior of the optic nerves and chiasm consists of cellular infiltrations in the septal connective tissue and around the blood vessels (fig. 1). Only if there is an extensive exudative process at one time or another in the interior of the nerves will optic atrophy occur. A few scattered lymphocytes and plasma cells within the visual pathways, while not completely harmless, will not cause large scale degeneration of the nerve fibers. In addition there is round cell infiltration in the pia of the intracranial optic nerves and chiasm (fig. 2). The latter, it should be emphasized, may be present without atrophy of the optic nerves.

The pathologic basis of syphilitic optic atrophy, therefore, is more like the process of dementia paralytica than of tabes. This knowledge is not new. Previous investigators made the same observation. In other words, my own findings uphold the anatomic studies

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Paper presented under the auspices of the Section on Nervous and Mental Diseases.

The study was aided by a grant from the American Social Hygiene Association and the American Society for the Prevention of Blindness.

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of Léri,[7] Stargardt[8] and Richter[9] that the primary lesion in syphilitic atrophy of the optic nerves is a peripheral and interstitial neuritis, which is followed by a slow secondary degeneration of the nerve fibers. Many writers on this subject have been so fascinated by the term tabetic optic atrophy that they have overlooked this important conclusion of the earlier workers, or they have become confused by the many different opinions which have been expressed on the pathogenesis of optic atrophy.

MECHANISM OF MALARIAL THERAPY IN THE ARREST OF SYPHILITIC OPTIC ATROPHY

After having gained a more accurate insight into the pathogenesis of syphilitic optic atrophy, it is easier for one to understand the beneficial action of malaria treatment. One of the more important effects of malaria therapy consists in arresting the inflammatory phase of the neurosyphilitic process. It is not yet known in exactly what manner this is brought about. There is evidence that the activation of the mesodermal tissue, which is produced by the malaria plasmodia and not by the elevated temperature, is responsible for the cessation of the inflammatory reaction.[10]

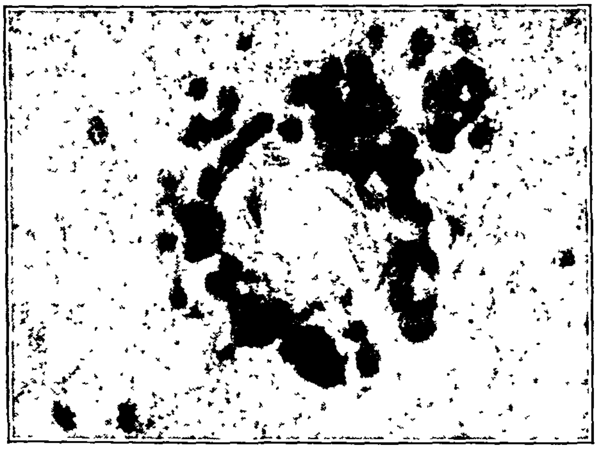

Fig. 1.—Perivascular infiltration of vessel in interior of optic chiasm in syphilitic primary optic atrophy. Toluidin blue stain.

The exudative phenomena have usually been interpreted as the direct effect of Treponema pallidum. Therefore, it was argued, if temperatures above normal destroy the spirochetes, the round cell infiltrations will recede. For practical purposes it has been shown, however, that hyperpyrexia which can be produced with safety in man is not deleterious to the syphilitic organism.[11]

In this connection the question arises: What is the relation of T. pallidum to optic atrophy? Igersheimer[12] made special studies concerning this problem. He observed an occasional spirochete in the meninges of the atrophied nerves in one third of the cases. On account of the scarcity of spirochetes, Igersheimer felt that treponemes are not directly responsible for the degeneration of the optic nerves. In my own material not a single treponeme was observed in the optic nerves, although in 1 instance masses of treponemes were present in the cortex of an orbital convolution immediately opposite the atrophied nerves. Spirochete studies in other types of neurosyphilis also tend to show that the pathologic process is only indirectly the result of T. pallidum. At the present stage of knowledge the exact relationship of the treponemes to the microscopic changes in the pathogenesis of the various types of neurosyphilis is not definitely known. Varied stages of tissue immunity obviously play an important role.

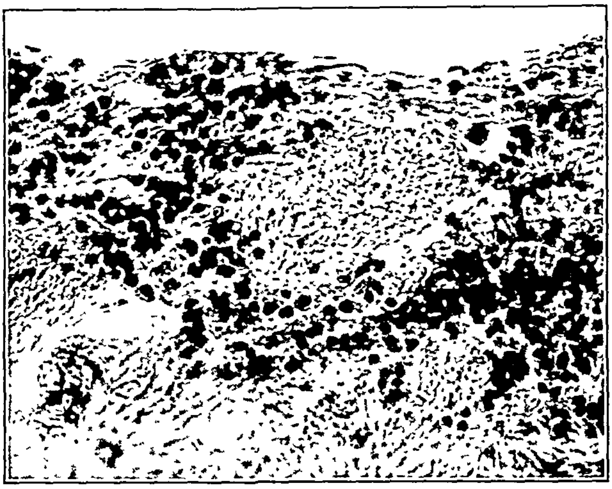

Fig. 2.—Round cell infiltration in pia of optic nerve, penetrating along the septums toward the interior in syphilitic primary optic atrophy. Hematoxylin-eosin stain.

Malaria therapy, besides changing the tissue immunity, inhibits the inflammatory element of syphilitic optic atrophy, and the secondary degeneration of the nerve fibers ceases. Since most frequently the inflammatory process advances from the periphery toward the interior, enough normal tissue of the central portion of the nerve is left for useful vision (fig. 3).

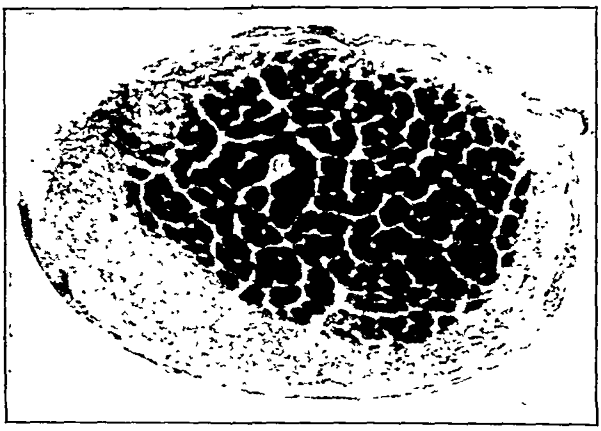

Fig. 3.—Beginning syphilitic optic atrophy, arrested by malaria therapy. The optic nerve shows a large marginal area of degeneration. Following malaria treatment the irregular contraction of the visual field ceased to progress. Myelin sheath stain.

Unfortunately, in a number of patients optic atrophy progresses in spite of malaria therapy. For some unknown reason malaria is ineffective. The inflammatory feature continues unabated, and complete optic atrophy ensues. Or malaria therapy arrests the exudative process, but the resorption of the round cell infiltrations is so slow that degeneration of the nerve fibers is almost complete before all the inflammatory cells have been removed. If one has the opportunity to examine the optic nerves of patients with syphilitic optic atrophy who have been treated with malaria, one will find that the absorption of the plasma cells and lymphocytes is a matter of years rather than of months. This fact expresses itself in the therapeutic results. For three years following malaria therapy slow progression of failure of vision may continue. Thereafter, no additional loss of vision has been noted.[4] On the other hand, in the patients who react most favorably to malaria treatment the concentric constriction of the visual fields will gradually expand, evidencing a capacity for recovery of partially damaged nerve fibers.

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CAN THE TREATMENT OF SYPHILITIC OPTIC ATROPHY BE IMPROVED?

It is quite evident, then, that treatment of syphilitic optic atrophy depends on the arrest of the chronic inflammation within the optic nerves. On this principle rests, to a large degree, the effectiveness of malaria therapy. In favorable cases one course of malaria will suffice. If visual failure continues to progress, one should contemplate another course of malaria. Quartan malaria (*Plasmodium malariae*) will have to be used, since in the interim an immunity has developed to the tertian strain with which the patient was previously inoculated.

Penicillin has been shown to reduce in neurosyphilis the increased cell count of the spinal fluid. To follow up malaria with penicillin or give it concomitantly may be a worthwhile procedure by enhancing the anti-inflammatory action of malaria therapy. To rely on penicillin alone would be hazardous. In my experience penicillin does not come up to the efficacy of malaria in the treatment of dementia paralytica, and the same may be true in its use in syphilitic optic atrophy.

SURGICAL INTERVENTION FOR SYPHILITIC OPTIC ATROPHY

In recent years syphilitic arachnoiditis involving the optic nerves has been held responsible for optic atrophy, and surgical intervention has been recommended.[13] Throughout this study especial attention was given to this conception. In every instance the chiasmatic region was carefully examined at necropsy. The base of the brain with the optic nerves and with the arachnoid in position was embedded for microscopic examination. From the histologic investigation the impression was gained that optochiasmatic arachnoiditis may be responsible in an exceptional case for the atrophy of the optic nerves. In by far the largest majority of primary syphilitic optic atrophy the arachnoidal adhesions about the optic nerves and chiasm are not the cause of the degeneration of the optic nerves. In some instances of syphilitic optic atrophy there is no adhesive arachnoiditis whatever in the optochiasmatic region. In others the thickened arachnoid passes harmlessly over the optic nerves. If in such cases the fibrosed and infiltrated arachnoid is surgically removed, there still remains within the optic nerves the inflammatory process, which is the essential factor in producing degeneration of the visual nerve fibers.

CONCLUSIONS

The good results with malaria therapy in the control of syphilitic optic atrophy can best be explained on the basis that the degeneration of the optic nerves is due to an inflammatory process, which is arrested by malaria treatment.

A patient with failing vision due to syphilitic primary optic atrophy should at once receive malaria therapy.

Routine antisyphilitic treatment with trivalent arsphenamine, bismuth and mercury is entirely inefficacious in syphilitic optic atrophy, and the patient will become blind almost as rapidly as if he had received no treatment at all.

ABSTRACT OF DISCUSSION

Udo J. Wile, Medical Director (R), U. S. Public Health Service: Among all of the late sequelae of acquired neurosyphilis, cases of primary optic atrophy have been, from the standpoint of therapy, the most hopeless group. Prolonged treatment with arsenicals, heavy metal and iodides fail to elicit any therapeutic response on the progressive changes of the optic nerve which ultimately lead to complete amaurosis. I am in accordance with Dr. Bruetsch's statement that, following the use of malaria, many cases have responded by a definite slowing up of the process, and a few have established a status quo which permitted the patient to sustain a limited vision indefinitely. In the absence of definite foci of spirochetes, such beneficial changes could be due only either to the relief of pressure, if this was present, or by the resolution or arrest of an inflammatory process as outlined by Dr. Bruetsch. Similar results, probably explainable on the same basis, occur with the not infrequent relief of root pains in tabes. Here again we are dealing not with the presence of organisms but with an inflammatory condition of the posterior roots and ganglions, which seems to be relieved not only by bouts of fever induced by malaria but also by mechanically induced pyrexia. My experiences convince me that thus far fever therapy, and particularly malaria, offers the only hope for arresting or delaying the process of optic atrophy. The mechanism of this therapy is adequately explained by Dr. Bruetsch's theory that the degeneration is caused by an inflammatory process.

Dr. Alan C. Woods, Baltimore: I agree with the author that optic atrophy is not limited to tabes. However, it is still true that the majority of patients with syphilitic optic atrophy also have tabes, which certainly indicates some close link in the pathogenesis of the two. I also agree that inflammatory reactions are responsible for the degeneration of the optic nerves. However, since in syphilis the inflammatory process is the response to an infectious agent, there is no reason to suggest that "the pathologic process is only indirectly the result of Treponema pallidum." The failure to find spirochetes in the optic nerve does not preclude their presence. Even in dementia paralytica, in which their presence is accepted beyond doubt, investigators as careful as Jahnel, for example, do not always find spirochetes in the brain. In my experience, fever treatment with malaria or with artificial hyperpyrexia has produced changes in the spinal fluid indicating an abatement of the inflammatory processes as evidenced by a drop in cell count and total protein. We therefore can rightfully assume that fever is largely responsible for the therapeutic success. Our present methods of treating central nervous system syphilis thus far have never given 100 per cent results. In some of the cases of failure the therapeutic method itself must be held responsible. In other cases the tempo and extent of the disease process are such that our present methods of treatment are totally inadequate. Therefore, in rapidly progressing failure of vision, just as in rapidly progressing dementia paralytica, the chances of arrest are poor, and when the entire optic nerve is involved the prospect of preservation of useful vision with the weapons at hand is also poor. One must also realize that the progression of tissue change once initiated by inflammatory reactions may continue because of various secondary forces. It is still too early, I feel, to conclude that fever produced by malaria or other methods, alone or combined with penicillin, is superior to penicillin as the single therapeutic agent when penicillin is given in optimum time-quantity dosages. The author is to be complimented for his provocative thinking on the question of the pathogenesis of neurosyphilitic processes.

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Dr. J. E. Moore, Baltimore: It is urgently to be desired that the pathologic study of syphilitic primary optic atrophy, which Dr. Bruetsch has here presented in brief summary, be subsequently published in expanded form. The student of the subject desires much greater documentation, with correlation of clinical data, treatment administered and pathologic findings. Especially gratifying to the clinician is Bruetsch's concurrence in the favorable effect of malaria in arresting the progress of the atrophic process, and his insistence on the immediate necessity for this form of treatment as soon as the diagnosis is established. Likewise important, in view of the recent fad for surgical intervention in this country and abroad, is the author's demonstration that, in the majority of cases of syphilitic primary optic atrophy, adhesive optochiasmatic arachnoiditis plays no part in the development or progress of the atrophy. From the clinical point of view it is difficult to agree completely with the author's concept of the pathogenesis of optic atrophy and his statement that its pathologic basis is more like that of dementia paralytica than of tabes. As observed clinically, primary optic atrophy is actually far more frequent in tabes than in any other form of neurosyphilis. In dementia paralytica, optic atrophy rarely occurs except when tabes is associated, and the entire disease process is properly designated taboparesis. In tabes itself, it is an old and frequently confirmed observation that optic atrophy is often the first manifestation, occurring years before the development of obvious damage to the posterior roots and columns of the spinal cord. These facts and others have led many observers, including myself, to the hypothesis that the pathogenesis of syphilitic primary optic atrophy is identical with the pathogenesis of tabes dorsalis itself. The latter is as yet unknown. Tabes differs from all other forms of neurosyphilis in many extraordinary respects, among which are the extreme selectivity of the neurologic damage, the absence of treponemes in the nervous system (here pointed out by Bruetsch himself for the optic nerves), the low reagin content of blood and spinal fluid, and the refractoriness of the disease to treatment. A tabes-like disease, with degeneration of the posterior roots and columns of the spinal cord, of the peripheral nerves, and with primary optic atrophy, has been produced in experimental animals by prolonged maintenance on a diet deficient in certain components of vitamin B. Is it possible that the reason some neurosyphilitic patients develop tabes with or without optic atrophy, or the latter alone, is a combination of the influence of syphilis with some other factor not as yet defined, possibly dietary deficiency? The answer to this fascinating question is likely to be had, if at all, neither from clinical nor from pathologic observations on neurosyphilitic patients but instead from carefully planned experimentation.

Dr. Bernhard Dattner, New York: I am completely in accord with Dr. Bruetsch's chief point, that malaria therapy is the indicated treatment in syphilitic primary optic atrophy and that in terms of the final visual result it is definitely superior to either intraspinal therapy or to routine antisyphilitic treatment with trivalent arsenicals and heavy metals. I am likewise in agreement with Dr. Bruetsch that the atrophic process in the nerves usually begins in the intracranial portion of the nerve and is characterized by thickening and perivascular round cell infiltrations of the overlying pia and its intraseptal prolongations in the nerve. The degeneration occurs first usually in the marginal fibers, often involves nerve bundles and may also involve the central papillomacular bundle. However, I am not convinced that the primary degeneration of the optic nerves, which in my experience is seen predominatingly in association with tabes and taboparesis, is paralytica, is entirely secondary to preceding inflammatory changes either in the pial septums or around the blood vessels. The large mass of anatomic material assembled by Dr. Bruetsch is impressive, and one awaits with interest a detailed report on the point emphasized by Dr. Bruetsch, namely that the degenerative process in the nerve is always secondary to an extensive preceding exudative process. If this point can be established it will go a long way to clearing up the enigma of primary syphilitic optic atrophy. If one grants Dr. Bruetsch's hypothesis of the pathogenesis of primary syphilitic optic atrophy, his conclusion that the mechanism of malarial therapy is an arrest of the neurosyphilitic inflammatory process is quite logical. Indeed, in a way the conclusion supports the original hypothesis. Ophthalmologists have for years employed the nonspecific protein reaction in the treatment of ocular inflammation and have amassed a considerable volume of evidence to indicate its value. However, the nonspecific protein reaction is a complex affair including not only the febrile reaction and leukocytosis but a general stimulation of the reticuloendothelial system, changes in the permeability of the capillaries, alterations in the colloidal contents and stability of the serum with changes in the sedimentation rate, immunologic changes with a mobilization of preformed antibodies and tissue desensitization, and various other changes. While there is a widespread belief that the beneficial clinical changes which follow the reaction are largely proportional to the degree of fever and leukocytosis which accompany it, this is far from being universally accepted, and many observers believe that equal, if not superior, results are obtained with mild proteins which cause little fever or leukocytosis. They attribute the favorable results to other phases of the nonspecific protein reaction. Dr. Bruetsch takes the latter view and cites in its support his 1932 work, which demonstrated that malarial therapy produced a reaction in the reticuloendothelial system, with stimulation of the capillary endothelium, the histiocytes and undifferentiated mesenchyme cells. This makes a logical argument, and considerable sound experimental work may be cited to support this view. The argument is predicated, however, on the premise that the degeneration in the optic nerves is secondary to a preceding inflammatory reaction. The evidence on this point is not yet entirely convincing. The theory that the degeneration in the optic nerves and posterior columns is secondary to a combination of neurosyphilis and vitamin deficiency is likewise bolstered by sound experimental work. I do not think it can as yet be discarded in favor of the evidence here presented. I am in full accord with Dr. Bruetsch on his views on opticochiasmoarachnoiditis.

Dr. Walter L. Bruetsch, Indianapolis: The discussers are in accord that malaria therapy is the most efficacious method of treatment of syphilitic primary optic atrophy. As to the degree of efficacy of penicillin alone, no definite statements can be made. The audience has been somewhat astounded by my statement that the pathologic basis of so-called tabetic optic atrophy is more like that of dementia paralytica than of tabes. In the past forty years only five anatomic studies have been made which consisted of sufficient material to be of conclusive value (Léri 1904, Stargardt 1913, Richter 1921, Igersheimer 1926, Behr 1917-1938). Every one of these investigators, with the exception of Behr, agrees that there is an inflammatory process in syphilitic primary optic atrophy and that the pathologic changes in the optic nerves are the same whether the optic atrophy occurs in tabes or in dementia paralytica. They are also the same in meningovascular syphilis. Optic atrophy occurs more frequently in tabes. The pathogenesis of syphilitic optic atrophy is linked up with the pathogenesis of tabes dorsalis. However, an expert on the histopathology of tabes such as Richter disclaims any semblance of the histopathology of tabetic optic atrophy to the process in the cord in tabes. Syphilitic primary optic atrophy, particularly the early and intermediate stage, is by no means rare in cases of dementia paralytica without tabetic cord involvement. The reason why in dementia paralytica optic atrophy has not been observed more often clinically is the fact that in the era before the advent of malaria therapy dementia paralytica, in contrast to tabes, was a fatal disease within an average of one to three years. Later the same therapy, namely malaria, which reversed the inflammatory process in the paretic brain cortex, also arrested the exudative process in the optic nerves, which in the early stage is limited to the marginal zone. The marginal degeneration of syphilitic optic atrophy has usually extended far into the interior of the optic nerves before the patient becomes aware of failing vision and consults a physician. At that time the process in the optic nerves has already existed for several years. For this very reason every syphilitic individual with a positive spinal fluid should have a visual field examination once a year. If a narrowing of the visual fields is present although the optic disks may still be normal, a diagnosis of beginning syphilitic optic atrophy is justified, and malaria therapy enforced by penicillin should be instituted. There is no conclusive evidence that vitamin deficiency plays any role in the production of syphilitic primary optic atrophy. The experimental work to which Dr. Moore referred is far from being convincing, and in human neuropathology nothing is known that even in extreme cases of the vitamin deficiency diseases the optic nerves become involved. It would be unfortunate if, on account of this suggestion, attempts should be made to treat syphilitic optic atrophy with vitamin pills.

SHIGA DYSENTERY

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In New Guinea, as in other parts of the world, bacillary dysentery, or shiga dysentery, will always be an important problem. It is particularly important to the armed forces because it renders fighting men noneffective and it increases the burden of the Medical Corps. Because of the necessity for keeping units of the armed forces as close to full effective strength as is feasible, it is desirable to utilize every means of arriving at the diagnosis as early as possible in order to shorten the period of hospitalization and to return such patients to duty.

By formal definition bacillary dysentery, or shiga dysentery, is an acute infectious disease of the lower bowel caused by the Shigella group of organisms and manifested by fever, cramps, nausea, vomiting and frequent stools containing mucus, pus and blood. Often the arbitrary statement is made that the stools of bacillary dysentery may be distinguished by the presence of pus, blood and mucus, that those of amebic dysentery contain only blood and mucus, and that the stools of simple diarrhea contain only mucus. Such a statement is correct in well developed cases but may be misleading in the earliest phase of the disease, the phase in which the certainty of diagnosis is most important.

All too often there is a tendency among soldiers to ignore various types of diarrhea or dysentery until their symptoms become severe. Anything less severe may be dismissed under the common designation "the G. I.'s," and the soldier may place the blame on the cleansing soap, on dirt on the mess gear or even on the chlorine in the water.

DIAGNOSIS

The medical officer who sees the patient first may not have adequate facilities at hand for immediate examination of more specialized type. His judgment as to whether a patient with frequent stools should be admitted to a hospital should be guided by the patient's general condition, by the severity of the diarrhea and by the presence of either of the other cardinal symptoms, namely fever or cramps. If the latter are present, further investigation is mandatory. A moderate percentage of patients in tropical areas may have only toxemic symptoms at the onset, and attention may not be directed to the bowel until loose stools appear, sometimes as long as two days later. Early symptoms may suggest dengue fever or malaria or other conditions manifested by fever and headache, and for that reason repeated questioning may be needed to get the patient to mention his first bowel symptoms.

The earliest positive diagnosis of bacillary dysentery is made by proctoscopy or proctosigmoidoscopy. Contrary to the common conception of such an examination as part of the initial physical evaluation, the procedure is neither difficult nor painful in patients with diarrhea. It is done as easily as the routine rectal digital, and with no more bother. If the patient is allowed to empty his bowel immediately before the proctoscope is inserted, the bowel usually will be found perfectly prepared for examination. An enema as preparation merely fills the bowel with poorly absorbed water, thereby creating interference. Furthermore, an enema may alter somewhat the true appearance of the bowel mucosa. I have found the knee-chest position most practical for the patient during the examination under field conditions. In most patients the diagnosis can be made with the instrument inserted no more than 5 inches, and the procedure requires only a few minutes. Specific diagnosis by culture of the stool usually requires two or more days, and there is a fair chance that the cultures will be negative. The early stools often do not contain pus or blood either grossly or microscopically. It is neither necessary nor desirable to wait for characteristic stools to appear before making the working diagnosis of bacillary dysentery.

SUBJECT MATERIAL

The material covered in this paper includes 87 cases of shiga dysentery seen in an army station hospital in New Guinea between May 1944 and March 1945. The number studied gives no idea of the incidence of the disease, since it includes no borderline cases and because many patients are treated in dispensaries. The purpose of the study was to increase the speed of accurate differentiation of bacillary dysentery from other forms of dysentery and to determine visually the response of the mucosal lesions to various types of treatment. Diagnostic proctoscopy was performed as soon as possible after it was suspected that the condition was the result of infection of the bowel. In some patients this could be done within a few hours after the onset of symptoms; in others who had been treated for a time in more forward areas or at local dispensaries such examinations were necessarily delayed. Subsequent to the initial examination, proctoscopy or sigmoidoscopy was performed at short intervals in order to follow the changes occurring during treatment.

The symptomatology of bacillary dysentery is variable, depending on the strain of organism, its virulence, the size of the initial infection and the general condition and resistance of the patient. One group of symptoms includes those caused by the acute toxemia resulting from absorption of exotoxin of Shigella dysenteriae or of small amounts of the endotoxin of Shigella paradysenteriae. To such toxemia can be attributed the fever, headache, chill, malaise, nausea, vomiting and generalized aches seen, in that general order of frequency. As a rule the acute toxic symptoms subside spontaneously in one to three days. The second group of symptoms is the result of bowel involvement and includes frequent bowel movements, cramps and the passage of bloody and purulent stools. Such diarrhea is watery and urgent, and in those cases in which a large amount of tenesmus is present there is usually an unusual amount of low rectal involvement. Stools number from one to forty each twenty-four hours, usually averaging between five and ten in that time. Fever ranging from 99.5 F. to 105 F. averages about 101.2 F. maximum. The cramps in shiga dysentery are nearly always low abdominal, although occasionally they occur in the mid or upper abdomen. Headache may be very severe, as indicated by the fact that 1 patient in our series had an admitting diagnosis of possible meningitis.

Physical findings are of little help in making a positive diagnosis of bacillary dysentery. Often, however, a tenderness over the descending colon helps to confirm the suspicion that the bowel is the source of the initial headache and fever. It was a little surprising to find the spleen palpable in 7 of the 87 cases in the series. No malarial plasmodia were found in thick blood smears, and as the acute toxemia disappeared the splenic enlargement could no longer be demonstrated. Two patients had algid or cholera-like dysentery with subnormal temperature, blood pressure falling to the shock level, clammy profuse perspiration and a severe prostrating diarrhea. One came on three days after herniorrhaphy, and the other developed three days after appendectomy for suppurative appendicitis. In addition to the use of large quantities of parenteral saline solution, the administration of sodium sulfadiazine intravenously led to dramatic improvement within twenty-four hours.

LABORATORY FINDINGS

In this series of cases routine laboratory tests were done but had only negative diagnostic value. The leukocyte counts ranged from 3,300 to 17,500, with an average value of 8,500. Microscopic examinations of stools showed no parasites or ova. Red and white blood cells and macrophages frequently were visualized.

In the 87 cases studied stool cultures taken before treatment was started were positive for Shigella organisms in 48.2 per cent. Various strains of Shigella paradysenteriae were isolated in 40 patients. Shigella ambigua was found in 2 and, through accident, 3 patients did not have stool cultures taken before treatment was started.

PROCTOSIGMOIDOSCOPIC FINDINGS

The types of bowel lesions seen on proctoscopy depend on the stage of the disease, on the virulence of the organism and on whether or not chemotherapy has been used prior to the examination. There are several salient features on which the diagnosis may be based.

1. *Early Phase.*—Even when the symptoms have been present only a few hours, the common features are found. Mucosal edema and diffuse hyperemia form the background. The edema may be barely discernible or the mucosa may present a waterlogged appearance. Usually the capillary dilatation is diffuse and the usual vascular pattern of the mucosa is lost. The mucosa may present a pink to red velvety surface. Punctate, flame-shaped or ecchymotic hemorrhages are visible either in the mucosa or beneath it. Studded through the mucosal surface in this acute phase there may be the most characteristic lesions of all, miliary mucosal abscesses of pin point or pin head size. These are creamy in color, slightly elevated and probably represent localized accumulations of leukocytes. These "abscesses" in the untreated cases become topped by shallow ulcerations. When the patient receives suitable chemotherapy the "abscesses" may disappear quickly or be replaced by reddish "granulation." Early, in the more acute cases, there may be a diffuse superficial necrosis of the mucosa, with dissolution of the normally smooth surface and the formation of a pseudomembrane which clings closely. This may be wiped free, leaving a red to purple raw mucosal surface which may be friable enough to bleed freely, giving frank blood mixed with pus or mucus in the lumen of the bowel. It is in the early acute phase of bacillary dysentery that the best opportunity for quick healing is offered. Up to a certain point in this infection the bowel mucosa may endure toxic changes without sustaining poorly reversible damage. After such damage has occurred, however, the lesions must run their own course, and their resolution is less quickly influenced by chemotherapy.

If a patient with bacillary dysentery receives no treatment, or if several days elapse before medical care is sought or treatment given, one of several things usually happens. The disease may be mild enough to run its course quickly without treatment, it may run a delayed course or it may reach an indolent ulcerative stage. It is the delayed course which shows best the middle phase of healing.

2. *Middle Phase.*—The mucosal changes in this phase are usually accelerated by chemotherapy. With or without treatment the lesions of the initial process clear in an order chronologically the opposite of their appearance. If first seen during this middle phase the mucosa may not have much residual edema, and fresh or fairly old granulations may have developed at the sites of previous mucosal necrosis or abscesses. These granulations vary in number and size. They are usually irregular in shape and separated by the fairly normal areas of mucosa not previously involved by necrosis. The granulations are usually a dusky red or purple, and in their centers superficial ulcers may or may not be seen. When present, such ulcers may vary from 0.5 mm. to over 1 cm. in diameter and may be round, oval or serpiginous. Their bases may be distinctly gray and dirty. The proximal surfaces of the valves of Houston are favorite sites for granulations and ulcers, although there is no regularity of location. A patient with much rectal tenesmus may have most of his mucosal lesions in the distal 6 cm. of the bowel.

As these lesions heal, the free pus and blood disappear from the lumen of the bowel and soon afterward the mucosal edema lessens. The diffuseness of the mucosal hyperemia as well as evidences of necrosis and pseudomembrane is lost. The abscesses and sometimes the hemorrhages vanish with only a trace remaining. Granulation fills in the ulcerations and may assume an elevated mulberry studded appearance. These dusky granulations usually become progressively lighter in color until a vague pink lymphoid type area remains. When this is no longer evident there is a restoration of the normal vascular pattern of the mucosa.

In 1 or 2 subacute cases of great severity fairly deep ulcerations of the mucosa were present, together with waterlogging edema of the interval mucosa, which ballooned over the edges of the ulcers, making them resemble an undermining type.

The most characteristic lesions of this phase are the ulcerations and the granulations which are part of the healing process. The granulations may be reluctant to disappear from the mucosa even though there may be no coincidental clinical symptoms. A red to purplish dry granulation may lend to considerable areas of the mucosa a mulberry appearance, while at the same time there may be no diarrhea or cramps. Such lesions often persist for many days after the patient could be considered cured symptomatically.

Immediate diagnosis and prompt adequate chemotherapy are necessary to prevent the development of such slowly reversible lesions.

3. *Late Phase.*—In a number of cases of untreated acute bacillary dysentery there occurs an indolent ulcerative phase in which the ulcers are more discrete. Such ulcers usually have a dirty gray base and the edges and interval mucosa may show little or no reaction. Sometimes persistent slowly healing ulcers leave superficial scarring, as manifested by areas of pallor and loss of the normal blood vascular pattern. These areas may be made more prominent by surrounding hyperplasia of lymphoid tissue. In our experience it is uncommon to see much late thickening of mucosa or of valve edges. Only 1 patient was seen with residual formation of tiny globular retention cysts in the mucosal surface.

DIFFERENTIAL DIAGNOSIS

In the differential diagnosis of the many conditions associated with diarrhea and the other symptoms suggestive of bacillary dysentery, one might mention amebic dysentery, gastroenteritis of undetermined cause, salmonella infections such as paratyphoid fever, idiopathic ulcerative colitis, cholera, staphylococcic food poisoning, epidemic diarrhea with nausea and vomiting, schistosomiasis, segmental enteritis, bowel neoplasms, balantidiasis, irritable bowel and malaria. In New Guinea bacillary dysentery must be differentiated most commonly from acute amebic dysentery, acute gastroenteritis, staphylococcic food poisoning, salmonellosis and epidemic diarrhea. In 90 per cent of instances we feel it is possible to make an early positive diagnosis of shiga dysentery by means of the proctosigmoidoscope.

As a rule in gastroenteritis, staphylococcic food poisoning and epidemic diarrhea we have found only mild edema and mild hyperemia of the mucosa.

In the proctoscopic examination of 11 cases of proved paratyphoid fever with diarrheic symptoms the chief value was a negative one in that it was possible in each instance to exclude bacillary dysentery. In 3 of these confirmed cases the diagnosis of paratyphoid fever was made by the proctoscopic picture and in 1 it was suspected. The paratyphoid fever cases with positive findings on proctosigmoidoscopy exhibited a mottled lymphoid mucosal hyperplasia of moderate degree. This occurred irregularly and was light pink, not red as one expects in ordinary hyperemia. Two of the patients had numerous small, round and oval ulcers rather evenly distributed on the tops of the lymphoid mucosal prominences.

Differentiation of borderline types of acute amebic dysentery is sometimes difficult. The usual type has characteristic discrete ulcerations which tend to be deeper and more evenly distributed than the ulcers of shiga dysentery There is more tendency to thick hyperplastic mucosal involvement, and it is common for the interval mucosa to be quite normal in appearance. Quite often the discrete ulcers have blood oozing out of their bases while at the same time no pus is visible. This is hardly ever seen in shiga dysentery. In the advanced cases of amebic colitis the deeper involvement gives a characteristic undermining of the ulcers and sometimes deep necrotic and sloughing areas with exposure of the muscular layers of the bowel.

EVALUATION OF RESPONSE TO TREATMENT

In studying the response of bacillary dysentery with and without various forms of treatment, it is necessary to take into consideration the fact that in many instances the disease is mild and more or less self limited and that the symptoms may clear spontaneously. In other cases the clinical symptoms clear spontaneously but the demonstrable mucosal lesions may persist. In previous studies [1] the criteria for response to treatment have been the cessation of symptoms and the length of hospitalization. Unless proctosigmoidoscopic studies have been made, such criteria are misleading. It can be demonstrated repeatedly in this condition that, although the relief of cramps and diarrhea by sulfadiazine is usually prompt or dramatic, the healing of the mucosal lesions seems dependent on how much time has elapsed between the onset of symptoms and the institution of chemotherapy. When the diagnosis is made and treatment started within twenty-four hours after onset of symptoms, the objective response to therapy may be as dramatic as was the relief of symptoms. If several days have passed during which symptoms were ignored, misunderstood or inadequately treated, the initial phase of toxic changes passes and ulcerations become more definite. The healing of such ulcerations passes through the usual phases of healing seen in any type of ulcer and naturally this requires time. The golden period of treatment of bacillary dysentery lies in the first twelve to twenty-four hours after onset of symptoms. This fact again emphasizes that proper treatment is dependent on rapid diagnosis before the stool culture can be of help.

In the attempt to evaluate the objective response to treatment of this series of cases, four groups were studied: (1) cases without chemotherapy, (2) cases with sulfaguanidine therapy alone, (3) cases treated with sulfadiazine alone and (4) cases treated with a combination of sulfadiazine and sulfaguanidine. We had no other suitable chemotherapeutic agents available.

General therapeutic measures common to all the groups included bed rest and liquid diet for twenty-four hours and in several instances intravenous administration of isotonic solution of sodium chloride. Paregoric and bismuth were not used in treatment. After the first day the diet was increased rapidly to full quantities.

When sulfaguanidine was given the patient received 4 Gm. every three hours for four doses, then 2 Gm. every four hours for a total of seventy-two hours, totaling 46 Gm. When sulfadiazine was used, equal weights of sodium bicarbonate were given. The initial dose was 4 Gm. of sulfadiazine followed by 2 Gm. every four hours for four doses, then 1 Gm. every four hours for four doses and 1 Gm. every six hours for seven doses, making a total of 23 Gm. in seventy-two hours. In a few instances maintenance doses of sulfadiazine were continued for up to a week. With the combined treatment, the usual sulfadiazine routine was followed for three days. During the last day of these, the sulfaguanidine routine was given and continued the fourth and fifth days of treatment, making a total of five days of therapy. These amounts were used without regard for the weight of the patient. An increase in the fluid intake to 3,000 cc. daily was encouraged, and in most instances subsequent leukocyte counts and urinalyses were made. Determinations of blood sulfonamide levels were made on many of the patients and the highest levels attained during sulfadiazine therapy ranged from 6 mg. to 22 mg. per hundred cubic centimeters. No reactions to sulfadiazine were encountered. Two patients receiving sulfaguanidine had drug reactions:

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[1] Paulley, J. W.: Treatment of *Bacillary Dysentery* in the Middle East, Lancet **2**:592 (Nov. 21) 1942. Poth, E. J.; Chenowith, B. M., Jr., and Knotts, F. L.: A Preliminary Report on the Treatment of Bacillary Dysentery with Succinylsulfathiazole, J. Lab. & Clin. Med. **28**:162 (Nov.) 1942.

1 manifested by headache, nausea and fever sustained at about 101 F., the other manifested by chilliness, fever to 104 F., headache, backache and slight splenic enlargement. Other sources of fever were excluded, and the temperature and spleen returned to normal after discontinuance of the drug. The second patient had had an initial therapeutic course of sulfadiazine without untoward reaction.

SYMPTOMATIC RESPONSE

In evaluating the relief of symptoms, record was kept of the disappearance of fever, cramps and diarrhea and of the time required for the establishment either of constipation or of normal bowel habit. This can be shown best by table 1. It may be seen that while some of the untreated cases subsided very promptly, most of them were classed as slow in response. The relief during sulfaguanidine therapy was faster than when none was administered. The remarkable relief of symptoms during sulfadiazine or combined sulfadiazine and sulfaguanidine therapy seemed to be chiefly the response to sulfadiazine. These results were more remarkable than apparent from the figures. Because of the need for treating the sickest patients with the most effective means available, a large percentage of those treated with sulfadiazine were of the most severe type and some of them had extensive subacute lesions of relatively long duration.

OBJECTIVE RESPONSE

The objective response to therapy (table 2) was determined by repeated proctosigmoidoscopies made at one to three or four day intervals, depending on the rate of healing. From two to ten examinations were performed on each patient. Here again many of the cases had been existent for sufficient time to render them rather resistant even to sulfadiazine. The extra time required for objective healing in these cases, all of which fell into the third and fourth therapeutic groups, elevated the average time required for clearing of the lesions treated with sulfadiazine alone or in combination. In those patients who had had their symptoms only a few hours before our diagnosis and treatment, the objective healing response was so swift and complete as to leave no conceivable doubt as to the effectiveness of the treatment. In even the worst of such necrotizing mucosal processes, if sulfadiazine treatment could be begun within twelve to twenty-four hours after onset of symptoms it was usually possible to anticipate objectively complete clearing of the lesions and restoration of a normal bowel within three to ten days.

Even with the most severe cases included in the sulfadiazine group, the average of seven days required for healing was significantly less than the average time required for disappearance of the lesions in cases treated with nothing or with sulfaguanidine alone.

Review of the 14 patients to whom no treatment was given shows that 7 had a mild form of bacillary dysentery in which demonstrable lesions subsided spontaneously in from six to fourteen days. Seven of the patients had symptoms and lesions which continued long enough to lead to a sense of shame at depriving them of treatment. Two of these finally cleared spontaneously. The other 5 had to have chemotherapy to terminate their symptoms and lesions. Sulfaguanidine, when finally given, cured both within a few days. With the help of chemotherapy these lesions healed in the eighth to twentieth days. In the last 5 of the 7 patients there was no doubt of the indolence of the process up to the time sulfaguanidine was given, although it is entirely possible that the lesions would have cleared ultimately without chemotherapy.

EFFECT OF CHEMOTHERAPY ON STOOL CULTURES

The question of persistence of positive cultures of the fecal content of the bowel is an important one from the point of view of direct transmission and subsequent carrier states. In our experience sulfadiazine is just as effective as sulfaguanidine in rendering such stool cultures negative. Of 87 patients, 42 had positive stool cultures before treatment. After treatment with sulfaguanidine, of 8 patients with positive stools before treatment, all had negative stools after treatment. Of 20 patients having positive stool cultures, sulfadiazine rendered the cultures negative in 18. The other 2 patients had to be evacuated for other reasons before the cultures became negative. Of 10 patients having positive stool cultures before treatment, all had negative cultures after the combined use of sulfadiazine and sulfaguanidine. In several patients with serial cultures taken twice daily by way of the proctoscope, it was found that sulfadiazine therapy rendered cultures negative within twenty-four to thirty-six hours. Such effectiveness decreases the period during which it is necessary to isolate such patients.

Table 1.—*Relief of Symptoms of Shiga Dysentery During Various Forms of Treatment*

	Symptomatic Relief					
Treatment	Dramatic, 1 Day	Prompt, 2-3 Days	Moderate, 4-5 Days	Slow, More Than 5 Days	None	Total Cases
None	0	3	1	6	4	14
Sulfaguanidine	0	6	9	5	0	20
Sulfadiazine	22	9	1	2	0	34
Sulfadiazine plus sulfaguanidine	14	2	2	1	0	19

Table 2.—*Healing of Mucosal Lesions of Shiga Dysentery as Demonstrated by Repeated Proctosigmoidoscopies During Various Forms of Treatment*

Case Groups	Hospital Stay, Average Days	Time Required for Healing	
		Average Days	Range, Days
No treatment	15.0	11.3	6-20
Sulfaguanidine	16.1	10.2	3-16
Sulfadiazine	12.9	7.0	2-14
Sulfadiazine plus sulfaguanidine	15.6	10.8	3-21
All cases	14.9	9.8	2-25

QUESTION OF CHRONIC BACILLARY DYSENTERY

A number of years ago during an outbreak of bacillary dysentery in a state hospital 2 patients with proved shiga dysentery continued to have persistent dysenteric symptoms. One, an old man, died of inanition about four months later. The second, a man aged 60 who remained in an acute manic phase of a manic-depressive psychosis, died three months after the onset of his dysentery. At autopsy in both patients many chronic ulcers were found scattered through the colon. Some of the ulcers were deep, some were shallow. Three other cases, not included in the present series, deserve comment. One patient for three weeks had had inadequate treatment prior to his admission for a severe dysentery caused by Shigella ambigua. Although he improved considerably on adequate chemotherapy, he continued to have symptoms and persistent shallow ulcerations of the mucosa during the sixty days of our observation before his evacuation. The second patient had had an acute bacillary dysentery five months before being seen by us, and in those months he had had about ten brief recurrences with intermittently positive stool cultures for Shigella paradysenteriae. He had never been hospitalized or examined with the proctoscope and treatment had been haphazard. On admission to the hospital after five months of recurrent symptoms chronic mucosal ulcerations were demonstrated by proctoscope although he was having formed stools at the time. Even on adequate treatment these lesions required over three months to heal. The third patient had had repeatedly recurrent episodes of dysentery following an initial acute attack four months before. He had received sulfaguanidine therapy for demonstrable mucosal ulceration in two other hospitals where he had been treated. The first proctoscopy by us following his last episode of diarrhea revealed that the bowel mucosa was normal except for several vaguely outlined pallid areas, and many stool cultures were negative. Following an operation for ingrown toenails, he developed acute bacillary dysentery with fever, cramps, many typical stools, culture positive for Shigella paradysenteriae and proctoscopic findings of hyperemia and edema which accentuated the previously noted pallid areas. Sulfadiazine quickly controlled his symptoms, and the bowel mucosa regained the appearance which it had had when it was first seen. We felt that this represented a chronic bacillary dysentery with acute exacerbation. These patients are cited chiefly to illustrate the belief that bacillary dysentery can give rise to one form of chronic ulcerative colitis. The first 2 had had no chemotherapy, and the last 3 had received late, haphazard or inadequate chemotherapy. Such cases emphasize the need for immediate diagnosis and prompt adequate chemotherapy in this disease.

CONCLUSIONS

1. The early diagnosis of bacillary dysentery can be made rapidly and accurately by proctosigmoidoscopy. Such examination should be made promptly whenever a patient complains of diarrhea and abdominal cramps either with or without associated fever. The use of the proctoscope for the immediate diagnosis of bacillary dysentery is as practical as the use of an otoscope or ear speculum in the diagnosis of otitis media.

2. Preliminary diagnostic and frequent subsequent proctosigmoidoscopies were made in cases of bacillary dysentery seen in New Guinea.

3. Pathologic mucosal changes were visible and diagnostic within two to twenty-four hours after the onset of symptoms.

4. In this series of 87 cases, 48 per cent had negative stool cultures and might have had incorrect diagnoses if proctoscopy had not been performed.

5. Repeated proctosigmoidoscopies were made to determine the comparative effects which various types of therapy have on objective healing of the bowel lesions. Fourteen cases were treated with bed rest and a low residue diet. Twenty cases were treated with sulfaguanidine alone, 34 with sulfadiazine alone and 19 with a combination of the two sulfonamides.

6. It is felt that the golden period for effective therapy in this condition occurs during the first twenty-four hours of symptoms. At that time the initial toxic changes in the mucosa are most easily reversible. If effective treatment is postponed until stool cultures are reported, the consequent ulcerative changes require much extra time to disappear and in a few cases such lesions become very resistant to treatment. Three patients were encountered with what seemed to be a form of chronic ulcerative colitis due to shiga dysentery.

7. Effective early treatment with sulfadiazine usually leads to prompt or dramatic cessation of diarrhea and cramps. However, symptomatic relief is not paralleled by objective healing of the mucosal lesions, which to heal may require three days or three weeks or longer depending on the length of time elapsing between the onset of symptoms and the institution of therapy. The objective healing of the mucosal lesions was significantly faster during chemotherapy, especially during the use of sulfadiazine. This was attributed to the readier access of the soluble sulfonamide to the causative organisms by way of the capillaries.

8. The immediate proctosigmoidoscopic diagnosis of bacillary dysentery permits prompt specific treatment, quick relief of symptoms, accelerated objective healing, a shorter period of hospitalization and reduction of the chances of mortality.

9. Empirical sulfonamide treatment of dysentery before proctosigmoidoscopic examination has established the diagnosis is to be deprecated because of the danger of overlooking causes which may be of more serious significance than bacillary dysentery.

PARATHYROID ADENOMA AND HYPERTROPHY OF THE PARATHYROID GLANDS

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The clinical recognition of hyperparathyroidism depends on interpretation of its protean manifestations. These have been divided into (1) those symptoms resulting from chemical alterations in the blood, (2) those symptoms resulting from involvement of the urinary tract and (3) those symptoms resulting from involvement of the skeleton.[1] At first the disease was recognized only in instances of far advanced skeletal disease. More recently a considerably larger group of cases have been reported in which renal symptoms predominated and skeletal involvement was minimal or absent. Albright, Aub and Bauer[2] have pointed out that hyperparathyroidism with bone disease may occur without evident renal lesions and that hyperparathyroidism with renal lesions can occur without bone involvement. It is therefore apparent that neither osseous nor renal lesions need necessarily be conspicuous in hyperparathyroidism. Keating and Cook[3] have mentioned one proved instance of hyperparathyroidism in which there was no evidence of bone or renal involvement. In any case in which hyperparathyroidism is suspected from the clinical manifestations, confirmation of the diagnosis depends on the interpretation of chemical analysis of the blood and urine for calcium and phosphorus.[4]

From the Section on Pathologic Anatomy.

Dr. H. E. Robertson, Dr J. W. Kernohan and Dr. F. Raymond Keating Jr. contributed advice in the arrangement of this paper.

[1] Albright, Fuller: The Parathyroids—Physiology and *Therapeutics*, J. A. M. A. **117:** 527-533 (Aug. 16) 1941. Keating.[4]

[2] Albright, Fuller; Aub, J. C., and Bauer, Walter: Hyperparathyroidism: A Common and Polymorphic Condition as Illustrated by 17 Proved Cases from One Clinic, J. A. M. A. **102:** 1276-1287 (April 21) 1934.

[3] Keating, F. R., Jr., and Cook, E. N.: The Recognition of Primary Hyperparathyroidism: An Analysis of 24 Cases, J. Urol., to be published.

[4] Keating, F. R., Jr.: The Diagnosis of Primary Hyperparathyroidism, M. Clin. North America, July 1945, pp. 1019-1035.

In the absence of conspicuous renal or skeletal disease, hyperparathyroidism could be expected to produce only the symptoms attributed to hypercalcemia per se. These include nausea, vomiting, weakness, lethargy and anorexia and have been most conspicuous in instances of severe or acute hyperparathyroidism, spontaneous or experimentally produced, of the type sometimes referred to as parathyroid poisoning.

Parathyroid overdosage was first produced in dogs by Collip[5] in 1926. A similar picture was also produced by Collip[6] by the injection of certain inorganic salts. Later it was demonstrated by Hueper[7] that dogs dying of acute parathyroid poisoning presented metastatic calcifications in organs such as the kidneys, lungs and stomach. Vomiting, anorexia, failure of the kidneys and death in a state of uremia from parathyroid overdosage in acute animal experiments were described by Thomson and Collip.[8] The findings at necropsy in dogs dying from acute experimental hyperparathyroidism were described by Cantarow, Stewart and Hausel.[9]

It is probable that the case reported by Dawson and Struthers[10] is the first example of acute hyperparathyroidism occurring in man due to parathyroid tumor. Listlessness, drowsiness, fever and vomiting have been reported in a boy 5 years of age given 100 units of parathyroid injection daily for six days by error.[11] Recovery occurred when administration of the parathyroid injection was discontinued. Hanes[12] in 1939 reported the first example of death from parathyroid poisoning in man that was observed clinically. In his case hyperparathyroidism was diagnosed but, before operation could be performed, the patient became extremely weak and nervous, had elevated temperature and generalized aching and died. At necropsy an adenoma of the parathyroid was found. In addition there were "widespread injury necrosis and calcification of connective tissue, especially that forming the basement membrane of the parenchymatous organs and the arteries of medium and arteriolar size." Hepatic focal necrosis was present. Calcification was present in the kidneys and myocardium to a high degree. Calcium deposits of a lesser degree were present in the stomach and lungs. There was widespread calcification of the media of the arterioles in the heart, kidneys and lungs.

Oliver[13] has described 2 cases of death from acute hyperparathyroidism. The clinical features were vomiting, anorexia, loss of weight, asthenia, constipation and mental retardation. Fever, drowsiness and tachycardia were present. At postmortem examination a chief cell adenoma of the parathyroid gland was found with metastatic calcification in the kidneys, heart, lungs, stomach and arterioles.

The fifth case of acute hyperparathyroidism to be confirmed by necropsy was reported in 1940 by Smith and Cooke.[14] For two years the patient had noticed limping, pains in the legs and constipation. These were followed by abdominal pain, vomiting, tachycardia and delirium. An adenoma of the parathyroid composed of chief cells was found at necropsy. There was metastatic calcification of the kidneys and the pancreas.

It is my purpose in this paper to present the findings in 2 cases of probable acute hyperparathyroidism associated with duodenal ulcer. This coexistence has not been reported previously. Castleman and Mallory,[15] however, cited chief cell hyperplasia (secondary hyperplasia) of mild degree occurring in 2 cases in which there were duodenal ulcers.

REPORT OF CASES

CASE 1.—A Negro man aged 36, first admitted to the Mayo Clinic Nov. 11, 1943, for seven years previously had noted intermittent epigastric pain, usually relieved with alkaline powders. In the year preceding admission the pain had become more severe than it had been before. He was said to have had syphilis in 1923 and to have received antisyphilitic treatment.

The results of the physical examination disclosed a temperature of 98 F., pulse rate 66 beats per minute and blood pressure 110 mm. of mercury systolic and 80 diastolic.

The tonsils, which were large, were infected. The remaining examination gave negative results.

The urine had a specific gravity of 1.020, its reaction was acid and it was negative for albumin and sugar and on microscopic examination. A complete blood count was normal. The Kahn, Kline, Hinton and Kolmer reactions were all negative.

A roentgenographic examination of the thorax gave negative results. Gastrointestinal roentgenograms revealed the presence of a duodenal ulcer, but there was no evidence obtained of pyloric obstruction.

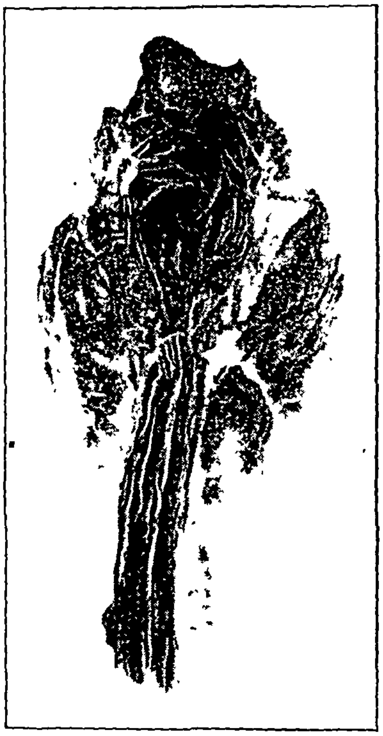

Fig. 1 (case 1).—Posterior view of the organs of the neck and adenoma of the right inferior parathyroid. The esophagus has been opened. Both lobes of the thyroid are seen.

The patient was hospitalized and routine treatment for ulcer was started. Tonsillectomy was performed on November 15. The postoperative course was uneventful for three days but then severe, continued vomiting developed. This was not associated with epigastric pain or nausea. It occurred after eating and at times lasted for several hours. The vomiting continued for eight days and then stopped.

The patient was well for two months after dismissal, but then epigastric distress recurred. This continued intermittently until July 1944, when it necessitated hospital care elsewhere. On his entering the hospital, administration of an ulcer diet with milk, calcium and magnesium phosphate was begun. After two days of this regimen, persistent vomiting developed and remained unabated for three weeks' time in spite of all treatment. Roentgenographic examination at this time again revealed a duodenal ulcer but no retention of barium in the stomach.

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[6] Collip, J. B.: The Production of Some of the Phenomena Peculiar to Parathyroid Overdosage in Dogs by Means of Certain Inorganic Salts, Am. J. Physiol. **76:** 472-482 (April) 1926.

[7] Hueper, Wilhelm: Metastatic Calcifications in the Organs of the Dog After Injections of Parathyroid Extract, Arch. Path. **3:** 14-25 (Jan.) 1927.

[8] Thomson, D. L., and Collip, J. B.: The Parathyroid Glands, Physiol. Rev. **12:** 309-383 (July) 1932.

[9] Cantarow, A.; Stewart, H. L., and Hausel, E. L.: Experimental Acute Hyperparathyroidism: II. Morphologic Changes, Endocrinology **22:** 13-27 (Jan.) 1938.

[10] Dawson, J. W., and Struthers, J. W.: Generalised Osteitis Fibrosa with Parathyroid Tumor and Metastatic Calcification, Including a Critical Discussion of the Pathological Processes Underlying Osseous Dystrophies, Edinburgh M. J. **30:** 421-564 (Oct.) 1923.

[11] Lowenburg, H., and Ginsburg, T. M.: Acute Hypercalcemia: Report of Case, J. A. M. A. **99:** 1166 (Oct. 1) 1932.

[12] Hanes, F. M.: Hyperparathyroidism Due to Parathyroid Adenoma, with Death from Parathormone Intoxication, Am. J. M. Sc. **197:** 85-90 (Jan.) 1939.

[13] Oliver, W. A.: Acute Hyperparathyroidism, Lancet **2:** 240-244 (July 29) 1939.

[14] Smith, F. B., and Cooke, R. T.: Acute Fatal Hyperparathyroidism, Lancet **2:** 650-651 (Nov. 23) 1940.

[15] Castleman, Benjamin, and Mallory, T. B.: Parathyroid Hyperplasia in Chronic Renal Insufficiency, Am. J. Path. **13:** 553-574 (May) 1937.

The vomiting ceased after dismissal from the hospital, and on Aug. 11, 1944 the patient was readmitted to the Mayo Clinic. The results of reexamination were unchanged except that a loss of 25 pounds (11.3 Kg.) was noted since last admission. He appeared apathetic and listless at this time. Questionable enlargement of the thyroid was noted. The blood pressure ranged from 140/80 to 170/110.

The urine was normal except for an occasional hyaline and granular cast. The blood count was normal. The Kline, Kahn, Hinton and Kolmer reactions were still negative. The concentration of urea was 38 mg. per hundred cubic centimeters of whole blood. The concentration of chlorides was 578 mg. per hundred cubic centimeters of plasma. The carbon dioxide combining power was 57.9 volumes per cent. The total acidity of the gastric contents was 82; free hydrochloric acid 69, no blood. The duodenal ulcer was again visualized, but no gastric retention was present.

The patient was hospitalized, and administration of an ulcer diet with aluminum phosphate gel and Sippy powders was begun Five days after admission, persistent vomiting reappeared. This, as before, was unaccompanied by pain and associated with only slight nausea. Throughout the period of hospitalization the patient had a peculiar listlessness, weakness and apathy which was unexplained. Psychiatric examination revealed evidence of an agitated depression, which had been increasing in severity for the past two months.

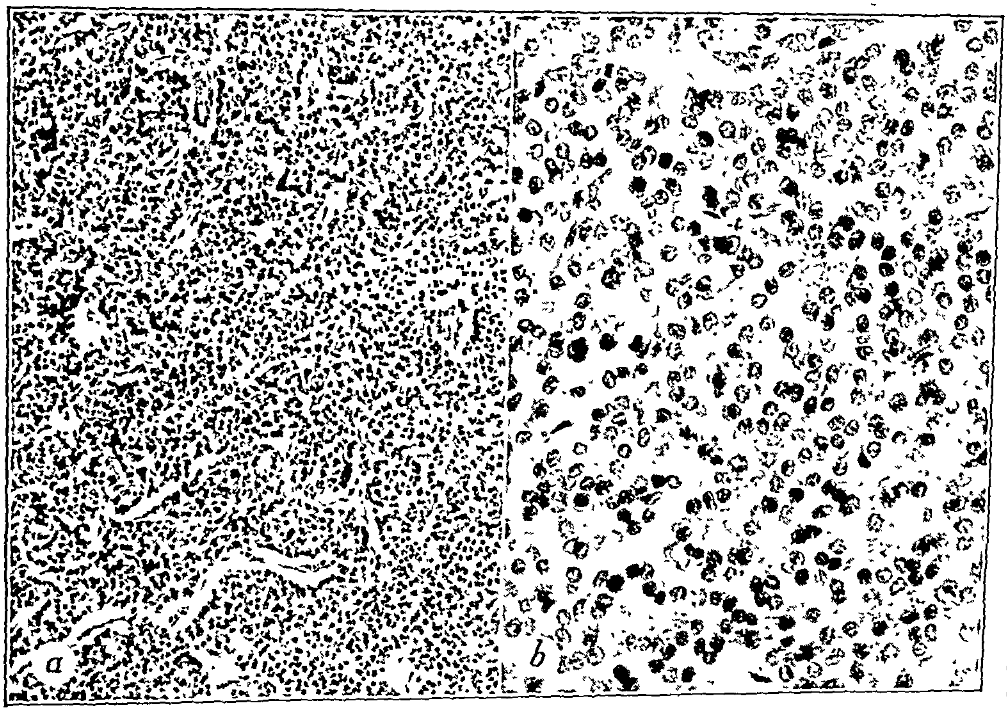

Fig. 2 (case 1).—*a*, adenoma of the parathyroid gland composed of chief cells (× 120); *b*, chief cells in adenoma of the parathyroid (× 350).

The vomiting, listlessness and apathy continued. In addition, headache appeared and the patient became disoriented. A hepatic function test was done on August 21, and pronounced retention of dye (sulfobromophthalein method) was found. The serum bilirubin was 1.5 mg. per hundred cubic centimeters direct and 0.3 mg. indirect. On August 27 for a short period he was unable to see. The temperature was now elevated for the first time and reached 101.6 F. in the evening. The blood pressure was now 145 systolic and 85 diastolic.

The patient became much worse on August 28 and lapsed into a semicomatose state. A roentgenogram of the thorax revealed bilateral congestion and parenchymal consolidation of the right lung, which were interpreted as indicating pneumonia. Administration of penicillin was started. A roentgenogram of the skull was negative. The concentration of urea had risen to 96 mg. per hundred cubic centimeters of blood and the concentration of chlorides was 611 mg. per hundred cubic centimeters of plasma. The carbon dioxide combining power was 75.8 volumes per cent. The serum bilirubin was 3.8 mg. per hundred cubic centimeters direct and 0.4 mg. per hundred cubic centimeters indirect. The serum lipase was 0.6 cc. of sodium hydroxide per cubic centimeter and the serum amylase was 160 units. There was dye retention, grade 4 (on the basis of 1 to 4, in which 1 designates the least and 4 the greatest retention), by the sulfobromophthalein method. The cerebrospinal fluid was clear with globulin positive; the total concentration of protein was 90 mg. per hundred cubic centimeters; the fluid was negative for blood; lymphocytes numbered 2 per cubic millimeter; the colloidal gold reaction was 0111100000; the initial pressure was 6 cm. of water; the pressure on compression of the jugular veins was successively 28, 10 and 8 cm. of water; the final pressure was 6 cm. of water.

The patient's condition became critical, with the rectal temperature rising to 105.6 F. Coma developed and vomiting continued. The output of urine, which had been good and was recorded as 3,600 cc. on August 28, dropped to 400 cc. on August 29 and to 200 cc. on August 30. The concentration of urea rose to 160 mg. per hundred cubic centimeters of blood and the serum bilirubin was 5.96 mg. per hundred cubic centimeters direct and 2.5 mg. per hundred cubic centimeters indirect on August 29. Death occurred on the morning of August 31 (nineteen days after admission).

At the postmortem examination the following conditions were deemed significant: an adenoma of the right inferior parathyroid (fig. 1); hypertrophy of the kidneys (right 405 Gm., left 400 Gm.); bronchopneumonia (right grade 3, left grade 1); mild icterus; healed duodenal ulcer; focal hemorrhage and infarct of the right cerebellar peduncle; thrombosis of a branch of the right pulmonary artery with calcification of the thrombus.

The adenoma of the right inferior parathyroid measured 3 by 1.5 by 1.7 cm. and weighed 4.12 Gm. It was light brown. The cut surface was also light brown and homogeneous throughout. The remaining parathyroids were normal in size and color.

In the lower lobes of both lungs there were irregular gray regions suggesting pneumonia. There was an antemortem thrombus occluding the pulmonary artery to the right lower lobe.

In the duodenum there was the scar of a healed ulcer located 1 cm. below the pylorus on the posterior surface.

The kidneys were enormous, the two organs together weighing 805 Gm. against a calculated normal of 400 Gm. The surfaces were pale brown and smooth. On section the cortex measured 0.8 cm. in thickness.

Microscopic study revealed the following findings (figs. 2 *a* and (*b*). The right inferior parathyroid was composed almost entirely of chief cells. In most regions they were arranged in solid masses, but often they were grouped in small cords and there was a tendency to assume a glandular pattern. Adipose connective tissue cells were practically absent. The stroma was sparse in some regions but more abundant in the glandular portion of the adenoma. Blood vessels were numerous. Only a few groups of oxyphil cells were present. The cytoplasm of the chief cells was sparse. In only an occasional cell were there deposits of glycogen. The remaining parathyroids were normal.

In the lungs there was bronchopneumonia in both lower lobes. The more striking finding, however, was the widespread calcification of the walls of the small and medium sized arteries (fig. 3). The deposits were in the media and involved the entire circumference of the vessels. There was also a widespread deposition of fine particles of calcium within the alveolar septums. These alveolar deposits were well demonstrated by von Kossa's specific stain for calcium. In the thrombus within the pulmonary artery to the right lower lobe there was pronounced calcification.

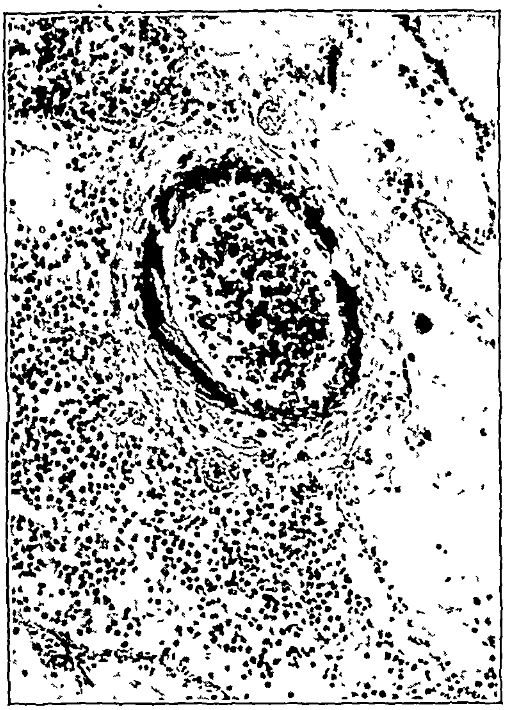

Fig. 3 (case 1).—Calcification of small pulmonary artery and bronchopneumonia. Calcification in the alveolar septums also can be seen (× 160).

In the liver, occasional bile canaliculi were distended with bile thrombi. Atrophy of the central zones was present in a minimal degree.

All sections of the kidneys revealed widespread deposition of calcium within the tubules and within the epithelial cells lining the tubules. In an occasional glomerulus there were deposits of calcium, and rarely a small artery presented medial calcification One small region of fairly recent infarction was almost completely calcified. Aside from these changes there was no evidence of recent or earlier renal disease.

The former duodenal ulcer was covered by intact mucosa. The pancreas was normal.

In decalcified microscopic preparations of the vertebrae and sternum there were disorganization of architecture and irregular distribution of calcium.

Case 2.—A white man aged 53, admitted to the Mayo Clinic on June 4, 1945, complained chiefly of epigastric pain and vomiting of two years' duration. In 1942 he had injured his back while employed as a miner. Roentgenographic examination at that time was reported to have revealed a chip fracture of the first and third lumbar vertebrae. Three weeks after this injury, while he was confined to bed, there developed vomiting, unassociated with pain, which persisted for one month. Intermittent epigastric pain continued for two years, occurring two to three hours after meals and relieved with alkali. There had been frequent episodes of vomiting during this time. In the past three months both the pain and emesis had become more severe, the latter not being associated with nausea. For two years there had been nocturia one to two times daily. Recent loss of 10 pounds (4.5 Kg.) had been noticed. For ten days prior to his admission, abdominal pain and severe vomiting had been present.

The patient's temperature was 98 F., pulse rate 96 beats per minute, blood pressure 154/100 to 130/100. His heart, lungs and abdomen were apparently normal. The urine had a specific gravity of 1.015, its reaction was acid and it contained a small amount of albumin but no sugar. Occasional hyaline casts were present. There were 6 leukocytes per high power field. The concentration of hemoglobin was 15.8 Gm. per hundred cubic centimeters of blood; leukocytes numbered 7,800 per cubic millimeter of blood. The Kahn reaction was negative. The concentration of urea was 28 mg. per hundred cubic centimeters of blood. Analysis of the gastric contents gave total acidity 68, free hydrochloric acid 56, no blood. Roentgenographic examination of the thorax was negative. The gastrointestinal roentgenographic studies visualized a duodenal ulcer with a crater but no gastric retention.

An ulcer regimen and administration of aluminum phosphate gel were begun. For three days the patient did well, but then vomiting started and was continuous, even though on some days his diet consisted only of milk. He was hospitalized on June 18 for observation and possible operation.

As the symptoms did not improve with hospital care, operation was advised. On June 30, 1945 gastric resection was done for subacute perforating duodenal ulcer. Three days after operation the concentration of urea had risen to 114 mg. per hundred cubic centimeters of blood, with concentration of chlorides 644 mg. per hundred cubic centimeters of plasma and carbon dioxide combining power 60.7 volumes per cent. The concentration of protein was 6.2 Gm. per hundred cubic centimeters of serum. The patient appeared listless and lethargic. This condition became more severe on July 7. Recurrent and persistent vomiting was again noted. On July 8 he stopped eating, and it was difficult to get him to talk. On gastric lavage there was no retention. The urinary output remained good. On July 9 the patient became semicomatose, and there was evidence of shock. On July 10 he sank into a coma and his temperature rose to 105 F. The blood studies at this time revealed urea 232 mg. per hundred cubic centimeters of blood and carbon dioxide combining power 46.6 volumes per cent. Leukocytes numbered 13,200 per cubic millimeter of blood. The course thereafter was downward. His temperature rose terminally to 106 F., with death on July 10, 1945.

At the postmortem examination the significant findings were as follows: primary hypertrophy of the parathyroids and of supernumerary parathyroid glands; recent (ten day) partial gastrectomy for perforating duodenal ulcer; terminal bronchopneumonia; multiple calcifications of the dura mater; hypertrophy of kidneys

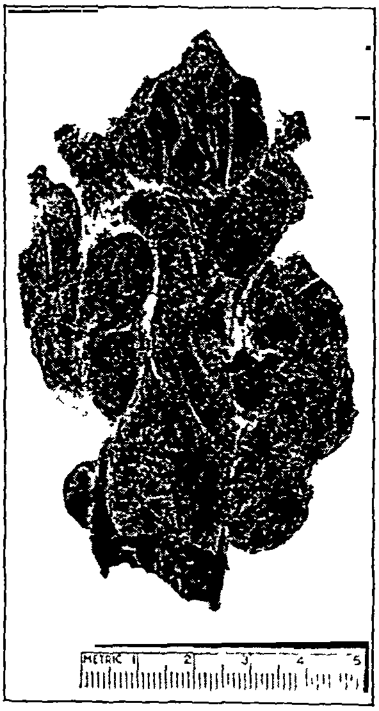

Fig 4 (case 2).—Posterior view of the organs of the neck, demonstrating hypertrophy of the parathyroid glands. The left superior and inferior parathyroid glands and the two right superior and the right middle parathyroid glands are seen. The esophagus has not been opened The left lobe of the thyroid is seen

The parathyroid glands presented a curious picture (fig. 4). On the left side there were three distinct glands designated as superior, middle and inferior. The left superior parathyroid measured 3.2 by 1.6 by 1.2 cm. From its upper lateral surface there was a tonguelike projection of parathyroid tissue measuring 1.2 by 0.4 by 0.2 cm. The left superior parathyroid with the tonguelike projection weighed 3.37 Gm. The upper part of the main portion was yellow-brown and homogeneous, while the lower third was darker brown and contained small cystlike cavities measuring up to 1 mm. in diameter. The left middle parathyroid measured 1.8 by 0.4 by 0.2 cm. and weighed 0.130 Gm. The left inferior parathyroid measured 0.7 by 0.4 by 0.2 cm. and weighed 0.09 Gm. These two glands appeared grossly like normal parathyroid tissue.

On the right side there were six distinct parathyroid glands. The largest of these, designated right middle parathyroid, showed extreme hypertrophy. It measured 5.7 by 2.0 by 2.7 cm. Its upper pole was pale brown, while the lower pole was dark brown. In it were two cysts filled with serous fluid; the larger one, in the upper pole, measured 2 by 1.5 by 1.5 cm. and the smaller one, in the midportion, measured 1.0 by 1.0 by 0.8 cm. The cyst walls were partially calcified. The gland weighed 14.9 Gm. after the cysts had been emptied. There were two small parathyroid glands lying on the superior and posterior surface of the right middle parathyroid gland but entirely separate from it. They might be designated right superior parathyroid glands. They measured 0.9 by 0.4 by 0.2 cm. and 1.0 by 0.6 by 0.3 cm. and weighed 0.110 Gm. and 0.150 Gm. respectively. Anteriorly and beneath the right middle parathyroid gland were three other distinct parathyroid glands. These might be designated as right inferior parathyroids. The largest two hung grapelike from the main tumor but were separated from it by bands of fibrous connective tissue. They measured 2.0 by 0.9 by 0.4 cm. and 2.0 by 0.6 by 0.4 cm. and weighed 0.730 Gm. and 0.690 Gm. respectively. The remaining right inferior parathyroid gland measured 1.0 by 0.4 by 0.2 cm. and weighed 0.150 Gm. (figs 5 and 6).[16]

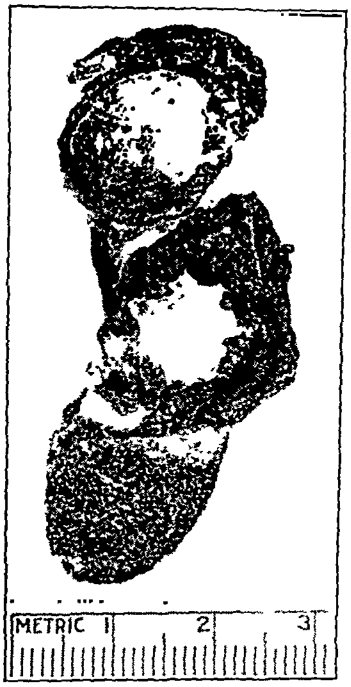

Fig. 5 (case 2).—The right middle parathyroid gland; two cysts are seen in the upper and middle poles.

The total amount of parathyroid tissue in this case weighed 20.32 Gm. as against a normal weight of about 0.14 Gm. I cannot find comparable reports in the literature of this number of supernumerary parathyroid glands.

In the lower lobe of the right lung there was increased consistency with corresponding decreased crepitation.

Two large ulcers were found in the duodenum, perforating on the pancreas.

The kidneys were pink-brown. The right weighed 250 Gm. and the left 290 Gm. There were many small adenomas measuring 1 to 4 mm. in diameter. Numerous peripelvic and parenchymatous cysts measuring from 1 to 2 mm. were present in both kidneys. Postmortem roentgenographic examination revealed diffuse nephrocalcinosis with the calcified regions measuring 1 to 2 mm.

There was calcification of the dura mater along the superior sagittal sinus and falx extending 1 to 1.5 cm. on each side. Small metastatic nodules of calcification up to 2 cm. in diameter were present on the inner surface of the dura mater.

The microscopic findings were as follows: All parathyroid tissue was composed of essentially the same type of large, clear cell (wasserhelle cell, described by Getzowa[17]) (fig. 8 *a* and *b*). The description of the cell fits well with that given by Castleman and Mallory and will be quoted:

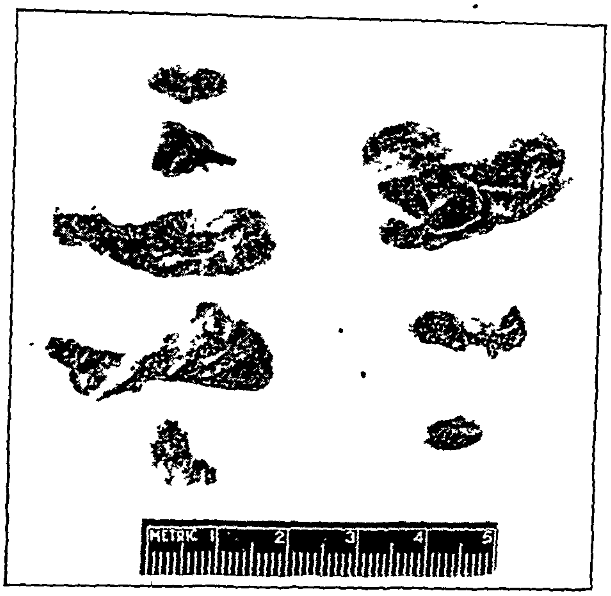

Fig. 6 (case 2).—Parathyroid glands; the right middle parathyroid gland is not shown; illustrated on the left are the right superior and right inferior glands and on the right the left superior, middle and inferior glands.

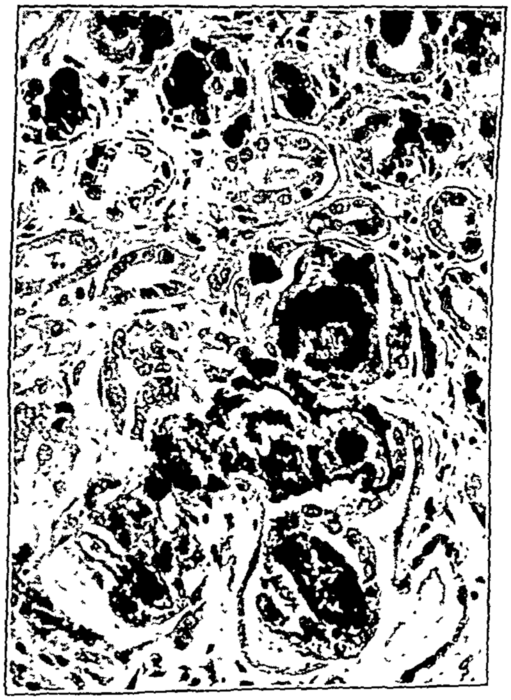

Fig. 7 (case 2).—Kidney with nephrocalcinosis of an extreme degree. The calcium is deposited in the tubular cells and in the lumen (X 235).

"The wasserhelle cell is polyhedral in shape, sharply demarcated by a thin basophilic membrane and varies from 10 to 40 microns in diameter, averaging 15 to 20 microns. Many of the cell boundaries are broken with resultant fusion, similar to the alveoli in pulmonary emphysema. In contrast to the variability in the size of the cells the nuclei, though often multiple, are round to slightly ovoid in shape, sharply outlined and moderately hyperchromatic with an eccentrically placed nucleolus. As a rule the nuclei are located in the end of the cells, that is contiguous to the stroma. This produces a characteristic pattern which resembles a branch of berries. The cytoplasm is clear except for a little light pink staining granular material. Many of their tiny granules are glycogen deposits. Similar granules are present within the nuclei. There is no fat except for a rare droplet in the stroma. The low power appearance of the histological sections is so similar to that of clear renal cell carcinomas that distinction would be difficult if the source were not known. The stroma is composed of thin fibrinous connective tissue bands containing a moderate number of connective tissue cells and relatively few blood vessels. Their bands surround small and large groups of cell, producing a pseudoglandular effect. This effect is further emphasized by the position of the nuclei as mentioned above. Occasionally a true single layered alveolus is seen. No oxyphil or chief cells are found. There are no mitoses."

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[16] Irregular surfaces with pseudopod-like projections from the parathyroid glands have been recorded (Castleman and Mallory,[18] Cope[20]), but in this instance connection between the glands could be demonstrated only with the left superior parathyroid.

[17] Getzowa, Sophia: Ueber die Glandula parathyreoidea, intrathyreoideale Zellhauben derselben und Reste des postbranchialen Körpers, Virchows Arch. f. path. Anat. **188**: 181-235, 1907.

In addition to the constancy of the large clear cell throughout all glands, the polarity of the nucleus was the next most constant feature. In the vast majority of the cells the nucleus occupied a position in the end of the cell nearest the stroma. A few cells had pink-staining granules within the cytoplasm. The diameter of the cells varied from 10 to 30 microns, with an average of 20 microns. Hyperplasia was self evident. The connective stroma was for the most part sparse, but in a few regions it was abundant. Glandular grouping was very commonly seen. At times the cells were grouped in cordlike formation, and cysts of various sizes were frequent. Adipose connective tissue cells were absent. Blood vessels were numerous. There was some variation in staining between the cells in a single gland and between those in other glands.

There were bronchitis and bronchopneumonia in the lower lobe of the right lung. A few deposits of calcium were present within the alveolar septums.

In the liver a moderate degree of central atrophy with necrosis was present. Bile canaliculi were dilated and filled to an unusual degree with bile thrombi.

In the pancreas, in an occasional duct, there was squamatization, while others had slightly distended lumens. There were focal hydropic changes in numerous groups of acinar cells.

In the duodenum the ulcers were active and penetrated onto the head of the pancreas.

All sections of the kidneys revealed numerous deposits of calcium in the epithelial cells and in the lumen of the tubules (fig. 7). In some regions the deposits of calcium had produced necrosis of the tubular cells. In an occasional glomerulus there was slight proliferation of the cells of Bowman's capsule, while a rare glomerulus was partially or completely fibrosed. There was dilatation of the tubules in a few regions. Numerous small "adenomas" were present in both kidneys.

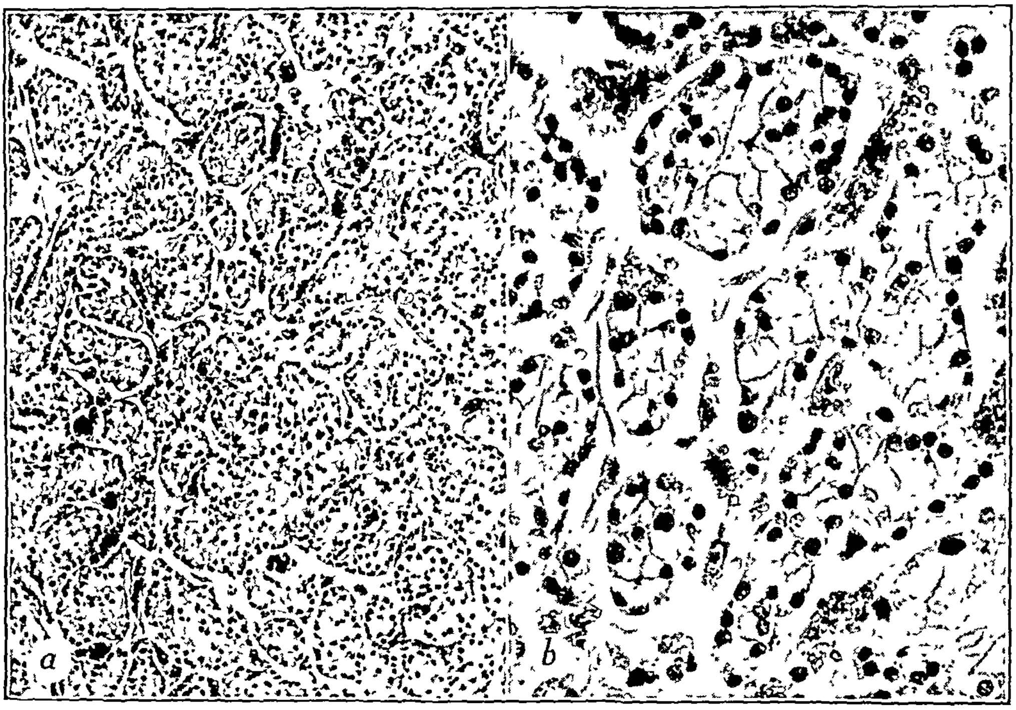

Fig. 8 (case 2).—*a*, hyperplasia of the parathyroids showing large clear cells in pseudoglandular grouping; the polarity of the nuclei is well illustrated (× 120). *b*, large cell hyperplasia of the parathyroids (× 350).

In decalcified microscopic sections of the vertebrae, sternum and ribs the trabeculae were thinned but no cysts or osteoblastic activity was seen.

COMMENT

In the first of these 2 cases of probable acute hyperparathyroidism with coexisting duodenal ulcer the condition was due to an adenoma of the parathyroid gland, composed of chief cells, and there was metastatic calcification in the kidneys, lungs and small arteries. In the second case the condition was due to generalized hypertrophy of the parathyroids and of supernumerary parathyroid glands with hyperplasia of the large, clear cell type. Metastatic calcification was found in the kidneys and the dura mater. The number of supernumerary parathyroids is unusual, and the total amount of parathyroid tissue present in this case showed hypertrophy and hyperplasia to an extreme degree. These 2 cases illustrate well the pathologic changes of the parathyroid gland in hyperparathyroidism. In a review by Castleman and Mallory[18] two distinct changes were emphasized. There may be enlargement of a single gland or adenoma of a parathyroid gland. The adenoma is composed of chief cells or any combination of chief cells with oxyphil cells or large clear cells. Secondly there may be hypertrophy of four parathyroid glands. The significance of primary hypertrophy was first emphasized by Albright and his associates[19] and recently by Cope.[20] In this type of primary hypertrophy and hyperplasia of the parathyroids there is a consistent histologic picture; the cells are all of large clear cell type (wasserhelle). The second case in this report is the first recorded case of primary hypertrophy from the Mayo Clinic.

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[18] Castleman, Benjamin, and Mallory, T. B.: The Pathology of the Parathyroid Gland in Hyperparathyroidism: A Study of 25 Cases, Am. J. Path 11: 172 (Jan.) 1935.

[19] Albright, Fuller; Bloomberg, Esther; Castleman, Benjamin, and Churchill, E. D.: Hyperparathyroidism Due to Diffuse Hyperplasia of All Parathyroid Glands Rather than Adenoma of One: Clinical Studies on 3 Such Cases, Arch. Int. Med. 54: 315-329 (Sept.) 1934.

[20] Cope, Oliver: Hyperparathyroidism: The Significance of Generalized Hyperplasia: Report of the Seventh Case, Clinics 1: 1168-1178 (Feb.) 1943.

Attention is called to changes of a nonspecific nature present in both cases. In the liver there was atrophy of the central zones. The bile canaliculi were distended to an unusual degree with bile thrombi. Bronchopneumonia was present as a terminal factor.

A portion of the kidney was analyzed for calcium in each case. It was found to contain 0.743 mg. per gram of wet tissue and 4.334 mg. per gram of dry tissue in case 1 and 0.899 mg. per gram of wet tissue and 4.174 mg. per gram of dry tissue in case 2. For control a normal kidney was examined by chemical methods and found to contain 0.0579 mg. per gram of wet tissue and 0.24 mg. per gram of dry tissue.

The existence of hyperparathyroidism in these cases might be questioned in view of the absence of confirmatory laboratory work. However, the findings at necropsy of parathyroid enlargement, the history, the renal changes and the metastatic calcifications are unequivocal. Castleman and Mallory[18] have stated that rigid proof of hyperparathyroidism is often lacking, but in cases of pronounced parathyroid enlargement the burden of proof rests on the disclaimer. That hyperparathyroidism may produce renal lesions in the absence of osseous changes is well known. The osseous changes are thought to be an indication of the duration and degree of the disease as well as of the dietary habits; so that it is probable that osteitis fibrosa cystica is dependent on calcium balance.[21]

The gastrointestinal manifestations of hyperparathyroidism are not as well known as are the osseous and renal changes. Gutman and his associates[22] described anorexia, nausea and vomiting, constipation and epigastric pain occurring in cases of hyperparathyroidism and stated that, "while these symptoms may suggest the diagnosis of duodenal ulcer or acute appendicitis, they have been considered as due to the toxic manifestations of hyperparathyroidism."

The coexistence of duodenal ulcer with hyperparathyroidism presents some interesting problems in regard both to differential diagnosis and to treatment. The diagnosis is complicated by the fact that hyperparathyroidism and duodenal ulcer present many symptoms that are common to the two diseases and their coexistence may obscure the diagnosis. Gutman and his associates have stated that hyperparathyroidism may itself produce symptoms that resemble those of duodenal ulcer. As seen from the cases presented, duodenal ulcers may actually exist with hyperparathyroidism. This coexistence has not been noted previously. When hyperparathyroidism and duodenal ulcers exist together, vomiting may be the manifestation of either one. However, if intractable vomiting occurs with duodenal ulcer in the absence of demonstrable gastric retention, it might suggest the presence of hypercalcemia and in turn hyperparathyroidism. This diagnosis is even more suggestive if the vomiting is aggravated by the institution or the continuation of an ulcer regimen with a diet high in calcium and phosphorus. Anorexia, when present, is in favor of hyperparathyroidism. The occurrence of muscular weakness and lethargy is secondary to the effects of hypercalcemia and, when associated with vomiting, may offer assistance in the diagnosis of hyperparathyroidism. In the 2 cases the presenting symptoms were those of duodenal ulcer, but in retrospect the vomiting aggravated by diet and medication with associated weakness and lethargy was probably the result of hypercalcemia. With coexisting hyperparathyroidism and duodenal ulcer in a patient whose principal complaints seem to be due to a duodenal ulcer, the cause is inevitably and irretrievably lost if the physician is not lucky enough to think of hyperparathyroidism.

The treatment of duodenal ulcer, if complicated by hyperparathyroidism, offers many difficulties. The reverse also is true. The danger of a high calcium intake in cases of hyperparathyroidism was suggested by Hunter and Aub[23] and the greater danger of high phosphorus intake was brought out by Albright, Bauer, Claflin and Cockrill.[24] Albright[1] now recommends a diet with a low calcium intake in cases of severe hyperparathyroidism and states that "if the serum calcium is near the critical level where a slight increase in it would precipitate parathyroid poisoning it may so happen that a diet high in calcium would make the difference." In the cases reported, the prescribed diet contained a daily calcium intake of 1.87 Gm. and a daily phosphorus intake of 1.56 Gm. This, compared with the daily calcium requirement of 0.80 Gm. as recommended by the National Research Council, and the average phosphorus intake of 1.40 Gm. of the adult male,[25] is greater than normal. An additional source of calcium and phosphorus intake to be considered is the medication. The standard Sippy powder contains calcium carbonate. Other drugs used in the treatment of duodenal ulcer, such as tribasic calcium phosphate, may add to the intake of these minerals. It is conceivable that such a diet might easily aggravate preexisting hyperparathyroidism with the production of parathyroid poisoning. Furthermore, medication may further aggravate the condition, and any medication that produces an alkaline urine may favor the precipitation of calcium phosphate in the renal tubules in cases of hyperparathyroidism.

SUMMARY

In neither of 2 cases of probable acute hyperparathyroidism not recognized during life did the history suggest osseous or renal disease. The presenting symptoms in each were those of coexisting duodenal ulcer and probable hypercalcemia. Treatment for duodenal ulcer, including a diet high in calcium and phosphorus, produced in each instance an exacerbation of symptoms: nausea, vomiting, lethargy, prostration and azotemia.

In the first case acute hyperparathyroidism was due to an adenoma of the parathyroid gland. In the second case it was associated with primary wasserhelle hyperplasia of the parathyroids and of supernumerary parathyroids. The latter case is the first reported instance of primary hyperplasia of the parathyroid glands from the Mayo Clinic. Metastatic calcification was present in the kidneys in both cases and involved the lungs and arterioles in case 1 and the dura mater and lungs in case 2.

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[21] Albright, Fuller; Baird, P. C.; Cope, Oliver, and Bloomberg, Esther: Studies on the Physiology of the Parathyroid Glands: IV. Renal Complications of Hyperparathyroidism, Am. J. M. Sc. **187:** 49-65 (Jan.) 1934.

[22] Gutman, A. B.; Swenson, P. C., and Parsons, W. B.: The Differential Diagnosis of Hyperparathyroidism, J. A. M. A. **103:** 87-94 (July 14) 1934.

[23] Hunter, Donald, and Aub, J. C.: Lead Studies: XV. The Effect of the Parathyroid Hormone on the Excretion of Lead and of Calcium in Patients Suffering from Lead Poisoning, Quart. J. Med. **20:** 123-140 (Jan.) 1927.

[24] Albright, Fuller; Bauer, Walter; Claflin, Dorothy, and Cockrill, J. R.: Studies in Parathyroid Physiology: III. The Effect of Phosphate Ingestion in Clinical Hyperparathyroidism, J. Clin. Investigation **11:** 411-435 (March) 1932.

[25] Clark, G. W.: Studies in the Mineral Metabolism of Adult Man, Univ. Calif. Publ. Physiol. **5:** 195-287 (June 19) 1926.

Clinical Notes, Suggestions and New Instruments

FOREIGN BODY (CASE KNIFE) IN THE SIGMOID

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and
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Foreign bodies in the sigmoid are rather infrequent, while foreign bodies in the rectum are reported more often Foreign bodies in the rectum are usually inserted accidentally, at other times inserted as prankish debauches Frequently sexual perverts stimulate this erogenous zone with various foreign bodies, which occasionally slip up into the rectum beyond their grasp This was the circumstance in the case presented

Various types and assortment of solid foreign bodies in the rectum have been reported Sharon[1] reports the removal of a tall mustard or pickle jar, 14 cm in height and 17 5 cm in circumference, from the rectum of a man aged 54 Clark[2] removed a thermometer accidentally lost in the rectum of a boy baby aged 11 months Hubrich[3] removed a woman's hairpin lying crosswise in the rectal ampulla in a boy aged 13 years The hairpin had been inserted in the rectum a month previously Hubrich stated that "thought should be given to the possibility of a foreign body in treating all cases of chronic constipation" Alley[4] removed a 30 watt frosted glass electric light bulb from the rectum of a grandfather aged 52 with, as he expressed it, "only slight damage to the patient" Chisholm[5] reported an unusual foreign body in the rectum and sigmoid in the form of an "iron rod approximately ½ inch in diameter which was bent upon itself in its upper half to form a handle Its overall length was 13½ inches and the handle portion, which was uppermost in the bowel, was 2¾ inches wide The object is technically known as a 'tuck pointer' and is used by masons in smoothing the mortar between rows of brick" This object was removed by laparotomy, an opening being made in the descending colon, with uneventful convalescence

Rosser[6] mentioned five examples of foreign bodies removed by him, namely (1) a five cent piece, swallowed five years previously, from a young woman with a congenital vaginal anus when he constructed an anal outlet, (2) a thermometer from a 4 year old child, (3) a 6 inch sauce bottle from a young male college student, (4) a 40 watt Mazda electric globe from a man aged 60 and (5) an enema tip

One of us (A M V) removed an enema tip which accidentally became detached while the patient was taking an enema The tip was impinged by lying crosswise in the rectum Under general anesthesia the tip was successfully removed

Meagher[7] reported the removal of a drinking glass 4 inches high, 2⅜ inches across the bottom and 2⅝ inches across the top from the rectum of a sexual pervert

Smiley[8] removed a glass tumbler surgically, resulting in death sixteen hours later

Warren[9] removed a fish hook from a man aged 60 who two days previously had eaten several jellied eels He also considered the possibility of its presence as an extraordinary weapon for use in anal eroticism

Hawe[10] removed surgically with a colostomy a jam jar 2½ inches in diameter at its base and 3 inches high, with recovery.

Hartwig[11] removed a rough irregular stick, 11 inches long from the rectum It presented a tumor mass in the region of the gallbladder and did not penetrate the bowel wall, probably because of the existence of a long mesosigmoid, as was likewise found in our case, in which the tumor mass was to the right of the umbilicus (fig 1)

Glendon[12] removed a jelly glass by surgical laparotomy, with recovery

Gillespie[13] removed a petrolatum bottle and Pretty[14] an ink bottle rectally

Cleghorn[15] removed a 10 inch ice pick by laparotomy, with death on the tenth postoperative day

Ball[16] removed a listerine bottle rectally by a loop made from a wire coat hanger

Macht[17] removed a "seven-up" bottle from an American sailor and stated that until then this was the eighth recorded case in which a bottle was present in the rectum According to Macht, the most remarkable foreign bodies reported in the literature up to 1943 were a snuff box, whisky glasses, a 30 cm mortar pestle, ox horns, electric light bulbs, an ink bottle, petrolatum bottle, cold cream jar, a lemon, an apple, chicken bones, a glass tube, portions of a broom handle, frozen pig's tail, and most unusual of all (cited by Macht) was "a tool box containing a piece of gun barrel, a screw driver, two hack saws, a boring syringe, a file, several coins, thread and tallow The tool box and its contents were removed from a prisoner who made his escape through death from obstipation At autopsy the tool kit was found to have migrated into the transverse colon"

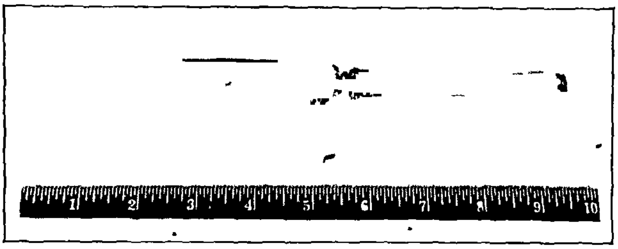

Fig 1 —Nine inch case knife removed from sigmoid colon via rectum The blunt end was pointed cephalad

REPORT OF CASE

V S, a white man aged 25, entered Cook County Hospital, Chicago, at 9 50 p m, Oct, 12, 1944, with an admitting room diagnosis of umbilical hernia His present complaint was pain in the abdomen for eighteen hours

He gave a history that while lifting a packing box weighing 150 pounds (68 Kg) at 3 15 a m, October 12, suddenly everything "let loose" inside his stomach and he immediately was seized with a severe, sharp, "knife like" pain in the region of the umbilicus, causing him to drop the box He returned home by street car and after he had lain in bed for one and one-half hours the pain seemed to disappear for several hours When he got up and attempted to go down stairs the pain returned but again disappeared after lying down for a while He went to his employer to receive his pay check and again the pain returned He consulted the plant physician, who

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From the Department of Surgery, Loyola University School of Medicine and Cook County Hospital (Dr Vaughn), Chicago

[1] Sharon James P Unusually Large Foreign Body in Rectum J Iowa M Sc **16**. 411 (Sept) 1926

[2] Clark F H Thermometer Lost in Rectum, Arch Pediat **44**. 784 (Dec) 1927

[3] Hubrich, R Foreign Body in the Rectum, Deutsche med Wchnschr **54** 476 (March 23) 1928

[4] Alley, Rufus C Unusual Foreign Body in Rectum, Kentucky M J **35**: 67 (Feb) 1937

[5] Chisholm, A J Foreign Bodies of the Rectum, Rocky Mountain M J **40**· 250 (April) 1943

[6] Rosser, Curtice Foreign Bodies of the Rectum, Texas State J Med **27**: 23 24, 1930

[7] Meagher, John F W An Unusual Foreign Body in the Rectum, New York M J **114**· 346 1921

[8] Smiley, Orvall Glass Tumbler in Rectum, J A M A **72**: 1285 (May 3) 1919

[9] Warren, C P Foreign Body (Fish Hook) in Rectum, Brit M J **2**· 638 (Sept 25) 1937

[10] Hawe, Philip Jam Jar in Rectum, Brit M J **2**: 937, 1928

[11] Hartwig, Marcell Unique Case of Foreign Body in Rectum, J A M A **77**: 1654 (Nov 19) 1921

[12] Glendon, W P Foreign Body in the Rectum, J M Soc New Jersey **23**· 143, 1926

[13] Gillespie, W F Vaseline Bottle in the Rectum, Canad M A J. **31**: 302 (Sept) 1934

[14] Pretty, H G An Ink Bottle in the Rectum, Canad M A J **31**: 302 (Sept) 1934

[15] Cleghorn, Charles D Foreign Body in the Rectum, Am J Roentgenol **19** 291 (March) 1928

[16] Ball, Ralph G Foreign Body in Rectum, J Kansas M Soc **29**: 218, 1928

[17] Macht Stanley H Foreign Body (Bottle) in Rectum, Radiology **42**· 500 (May) 1944

advised hospitalization. En route to the hospital via street car the pains became so severe that he was compelled to get off the car and sit on the curb. A passing motorist came to his assistance and brought him to the hospital. After lying in bed for a while the pain gradually disappeared.

The history revealed no nausea, vomiting, constipation, diarrhea nor melena past or present. He experienced, however, attacks of "heartburn" following the ingestion of fatty foods as pork and sausage.

On the day of admission he first noticed a small, hard tender "knot" just to the left of the umbilicus.

The family history revealed that his mother and one sister had died of tuberculosis. One living sister had tuberculosis and one living brother had been insane all his life.

The patient had lost 36 pounds (16 Kg.) since being discharged from the Army in September 1943 because of arthritis of the spine and poor eyesight. Eight years before admission he suffered for four months with rheumatism. He stated that he did not have a venereal disease. He said that he drank 1½ gallons of beer daily with a couple of "shots" of whisky and masturbated one or two times daily. He was rather uncommunicative and sullen and offered no information which would have guided us toward a correct diagnosis.

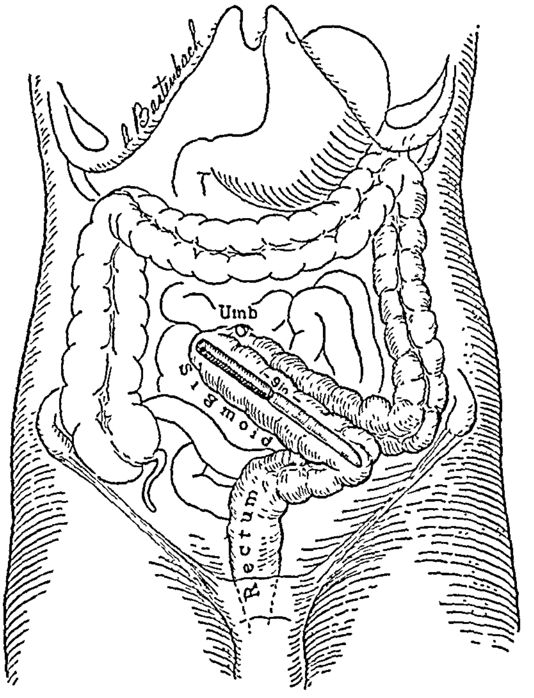

Fig. 2.—Diagrammatic sketch showing position of knife in sigmoid colon. Note the long mesosigmoid, which enabled the knife to assume this position.

On physical examination the patient appeared moderately well developed, listless and in no acute distress. His rectal temperature was 99.8 F., pulse rate 68, respiratory rate 16 and blood pressure 112/65. A systolic heart murmur at the apex was heard and was transmitted over the entire precordium. In the abdomen a small 1 by 1 cm. hard, tender nodule, not hot nor red, was noted to the left of the umbilicus, giving the appearance of a periumbilical hernia. No other masses were palpable. The abdomen was soft. The peristaltic sounds were normal. There was no distention and no inguinal nor femoral hernia present. Rectal examination was negative. No masses were felt as far as the examining finger could reach.

The urine and blood were normal.

The impression was one of (1) umbilical hernia with incarcerated omental tab; (2) rheumatic heart disease, with mitral regurgitation and cardiac enlargement.

The patient was seen and examined by the night surgeon and the night surgical resident on call at 3 a. m., October 13. They did not consider the case a surgical emergency, but advised observation. At 9 a. m. on the same day the surgical resident in the ward (J. A. M.) examined the patient and made the following notations:

"Patient has a small hard, painful, freely movable nodule just to the right of the umbilicus. No obstructive signs or symptoms: I believe this to be a rectus sheath herniation. Should be explored in the next few days."

A progress note on October 14 stated "Hard knot near umbilicus still present: It is very tender but freely movable over an area of 5-10 cm. square about umbilicus."

The following week the patient had no complaints unless the mass was palpated. The bowel movements were normal on general diet. There was no distention. Rectal examination was negative. Surgical exploration of the tender nodule was advised.

A preoperative diagnosis of umbilical hernia with incarcerated omental tab was made and the patient was operated on under general anesthesia on October 23. A transverse incision was made below and to the right of the umbilicus. The sheath of the rectus abdominis was split about 4 inches at the lateral border and the muscle retracted medially. The mass was found to be intra-abdominal and the peritoneum was cut longitudinally long enough to admit the hand. A long hard mass was found in the lumen of the redundant sigmoid lying obliquely in the lower abdomen to the right of the umbilicus and pointing left toward the middle of the inguinal ligament. The mass was carefully manipulated and milked down the sigmoid into the rectum, where an assistant was able to grasp the tip and with gentle pressure from above and traction below the mass was removed via the rectum and found to be a 9 inch table or case knife (fig. 1).

The abdominal wall incision was closed in layers. The patient made an uneventful recovery and was discharged from the hospital on the eleventh postoperative day.

SUMMARY

Rectal examination will detect foreign bodies in the rectum but may fail to do so when they have ascended into the sigmoid or higher. In this case report rectal examination was negative, owing to the fact that the knife had ascended into the sigmoid and occupied an oblique position in the lower part of the abdomen (fig. 2). Owing to wartime scarcity of x-ray films, when only x-rays of the most urgent cases are ordered, no x-rays were taken. In normal times a scout plate would have been taken and a definite diagnosis obtained.

Surgical removal by laparotomy either by opening the colon or by directing the foreign body downward toward the anus is in many instances necessary. The mortality is greatly increased when the colon is opened, but with the advent of succinylsulfathiazole it is hoped and expected that the rate will be greatly lowered. Laparotomy alone gives a very low mortality.

In reviewing the literature we were unable to find a similar case of foreign body in the sigmoid or rectum.

The irony of this case was the fact that the complaint on admission was a "knife like" pain in the abdomen. How true this proved to be on opening the abdomen eleven days later!

CONCLUSIONS

1. Foreign bodies in the sigmoid may pass unrecognized by rectal examination.
2. A long mesosigmoid may allow the foreign body to ascend high within the abdominal cavity.
3. A foreign body in the sigmoid must be differentiated in cases of freely movable lower abdominal tumors.
4. Fatalities may occur in removing foreign bodies from the sigmoid surgically.
5. A history is not always realiable, especially in patients by whom the foreign body was used as an instrument of sexual perversion.

30 North Michigan Avenue.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

BACTERIAL VACCINE MADE FROM HEMOPHILUS PERTUSSIS.—Pertussis vaccine.—Whooping cough vaccine.—A sterile suspension of killed pertussis bacilli (Hemophilus pertussis) of one or more strains showing the characteristics of phase I as described by Leslie and Gardner. The suspension is contained in isotonic solution of sodium chloride or other suitable diluent. The vaccine may be dispensed as a simple suspension, commonly known as "plain vaccine," or as an alum precipitated or aluminum hydroxide adsorbed suspension. The vaccine shall contain in each cubic centimeter not less than 10 billion organisms. The vaccine may be dispensed by itself or in combination with one or more other antigens, provided the combination does not lessen the antigenic value of the pertussis vaccine or otherwise make the product unsuitable for human use.

Actions and Uses.—Well controlled field studies indicate that pertussis vaccine possesses sufficient antigenic value to afford considerable protective value against whooping cough. The effect in lowering the death rate is even more striking than its effect in preventing an attack of the disease, since cases do occur in spite of the previous injection of vaccine, but such cases are usually less severe.

Dosage.—The most satisfactory dose has not been established adequately. In general, the vaccine when used as a plain vaccine should contain not less than 15 billion organisms per individual injection, with the total dose representing at least 45 billion, preferably much more. When used as precipitated vaccine the individual injection should contain not less than 10 billion organisms, with a total dose of 30 billion or more organisms. Pending more complete knowledge it is suggested that the user be guided by the dosage recommendation given on the manufacturer's product, since this represents the dosage accepted by the investigators whose methods have been used in preparing the vaccine.

CUTTER LABORATORIES, BERKELEY, CALIF.

Pertussis Vaccine Phase I Concentrate: 5 cc., 20 cc. and 50 cc. vials. H. pertussis 20,000 million per cubic centimeter. Preserved with phenol 0.25 per cent and merthiolate 0.002 to 0.005 per cent.

THE NATIONAL DRUG COMPANY, PHILADELPHIA

Pertussis Vaccine (Double Strength): 6 cc. vial (one immunization), 12 cc. vial (two immunizations) and 25 cc. vial (four immunizations). H. pertussis 20,000 million per cubic centimeter. Preserved with merthiolate 1 : 10,000.

SHARP & DOHME, INC., GLENOLDEN, PA.

Pertussis Bacterin "H" Strength: 5 cc. and 20 cc. vials. 20,000 million H. pertussis per cubic centimeter. Preserved with phenol 0.5 per cent.

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Pertussis Vaccine (Single Strength): 24 cc. vials. 20,000 million H. pertussis per cubic centimeter. Preserved with phenol 0.5 per cent.

Pertussis Vaccine (Double Strength): 5 cc. and 20 cc. vials. 20,000 million H. pertussis per cubic centimeter. Preserved with phenol 0.5 per cent.

PERTUSSIS VACCINE ALUM PRECIPITATED.—A bacterial vaccine prepared from alum precipitated, killed H. pertussis.

Actions and Uses.—Same as Bacterial Vaccine made from H. pertussis.

Dosage.—Three 1 cc. subcutaneous injections of 10,000 million or 15,000 million H. pertussis at three to four week intervals.

THE NATIONAL DRUG COMPANY, PHILADELPHIA

Pertussis Vaccine (Alum Precipitated): 3 cc. vial (one immunization) and 10 cc. vial (three immunizations). 10,000 million H. pertussis per cubic centimeter. Preserved with merthiolate 1 : 10,000.

PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA TOXOID.—A combination of pertussis vaccine with diphtheria toxoid.

Actions and Uses.—Employed in the simultaneous immunization of susceptible persons against diphtheria and whooping cough.

Dosage.—Three doses of 1 cc. at three to four week intervals.

THE NATIONAL DRUG COMPANY, PHILADELPHIA

Diphtheria-Pertussis Combined Vaccine (Alum Precipitated): Three 1 cc. vials (one immunization) and three 5 cc. vials (five immunizations). 10,000 million H. pertussis, 0.5 cc. diphtheria toxoid immunizing dose. Preserved with merthiolate 1 : 10,000.

SHARP & DOHME, INC., GLENOLDEN, PA.

Diphtheria-Pertussis Antigens Combined (Alum Precipitated): 10 cc. vials (three dose immunizations). 10,000 million H. pertussis diphtheria toxoid immunizing dose. Preserved with phenol 1 : 50,000.

PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA AND TETANUS TOXOIDS.—A combination of pertussis vaccine with diphtheria toxoid and tetanus toxoids.

Actions and Uses.—Employed in the simultaneous immunization of susceptible persons against whooping cough and diphtheria.

Dosage.—Three subcutaneous injections of 1 cc. at three to four week intervals.

THE NATIONAL DRUG COMPANY, PHILADELPHIA

Diphtheria-Tetanus-Pertussis Combined Vaccine (Alum Precipitated): Three 1 cc. vials (one immunization) and three 5 cc. vials (five immunizations). 10,000 million H. pertussis, diphtheria toxoid and tetanus toxoid 0.33 cc. each per cubic centimeter. Preserved with merthiolate 1 : 10,000.

CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 355).

The following article has now been accepted:

EATON LABORATORIES, INC., NORWICH, N. Y.

Lorophyn Jelly: A water soluble jelly formed from tragacanth and purified Irish moss, having a p_H of 7.5, prepared from the formula:

	Per Cent
Phenylmercuric acetate	0.05
Polyethylene glycol of mono iso octyl phenyl ether	0.3
Gum tragacanth	1.8
Purified Irish moss	2.0
Glycerin	8.0
Methyl p-hydroxy benzoate	0.05
Sodium borate U. S. P.	3.0
Water	84.8

Actions and Uses.—See article Contraceptive Jellies and Creams.

Dosage.—5 cc.

SYRINGE APPLICATORS FOR CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 357).

The following article has now been accepted:

EATON LABORATORIES, INC., NORWICH, N. Y.

Lorophyn Jelly Applicator: A transparent plastic syringe threaded at the blunt, intravaginal end, to screw onto the tubes of jelly, to permit filling by compression of the tube. The full capacity is 5 cc., the recommended dose.

HEXAVITAMIN (See THE JOURNAL, Aug. 11, 1945, p. 1099).

The following dosage form has been accepted:

THE WM. S. MERRELL CO., CINCINNATI

Tablets Hexavitamin: Each tablet contains 2,500 U. S. P. units of vitamin A, 200 U. S. P. units of vitamin D, 1 mg. of thiamine hydrochloride, 1.5 mg. of riboflavin, 37 mg. of ascorbic acid and 10 mg. of nicotinamide.

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1945, p. 428).

The following dosage forms have been accepted:

BRISTOL LABORATORIES, SYRACUSE, N. Y.

Diethylstilbestrol (in Sesame Oil): 0.2 mg. per cc.; 0.5 mg. per cc.; 1.0 mg. per cc.; 2.0 mg. per cc. and 5.0 mg. per cc.: 1 cc. ampuls and 30 cc. vials. Preserved with 0.005 Gm. chlorobutanol.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - CHICAGO 10, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - Eight dollars per annum in advance

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SATURDAY, JANUARY 5, 1946

MEDICAL APPOINTMENTS IN THE VETERANS ADMINISTRATION

Announcement of the appointments of consultants to veterans' hospitals, including members of the faculties of the leading medical schools which are cooperating with the Veterans Administration, has aroused anxiety among physicians still in the armed forces as to the possibility that all the available places may be filled before their release from the service. THE JOURNAL is informed by the administrators of the Veterans Administration that not all the places have been filled by any means and that there will be opportunities for practically all the well qualified men who wish to serve for several years to come. In areas not associated with medical schools, appointments will be made directly from Washington.

Recently THE JOURNAL published an announcement from the Surgeon General of the U. S. Public Health Service indicating that many positions are vacant in that organization. The Army Medical Department has available many positions for physicians who have been in the service, and the Navy is currently determining how many of its reserve officers will accept permanent appointments.

Elsewhere in this issue appear two statements relative to the Veterans Administration which should be read carefully by all who are interested in taking part in this work. The Veterans Administration is especially anxious to secure the services of physicians with neuropsychiatric training or who may be especially interested in neuropsychiatry and willing to take graduate study in this field. The legislation establishing a division of medicine in the Veterans Administration has been passed by the House and the Senate and will no doubt be signed by the President. An analysis of the legislation published in this issue of THE JOURNAL indicates the opportunities available both in full time and in consultant capacities. Applications may be made directly to the Veterans Administration in Washington, D. C.

PRECURSORS OF THE PORPHYRINS

The question of the identity of chemical substances used in the formation of the porphyrins in the body has been a matter of speculation for many years. The problem is important in medicine because a number of respiratory pigments, including hemoglobin, the cytochromes and catalase, contain the porphyrin group. Furthermore, it is conceivable that an impairment of porphyrin formation might be responsible for some clinical anemias and that a derangement of normal porphyrin formation may occur in such clinical conditions as congenital porphyria and other types of porphyrinuria in man. Thus an understanding of the manner in which porphyrin is formed in the organism becomes of practical importance.

From the classic chemical studies of Hans Fischer,[1] a Nobel laureate, it has been found that porphyrins may be synthesized in vitro from rather simple starting materials such as aminoacetic acid and formyl acetone. Also the fact that the porphyrins contain four pyrrole rings suggests that one or more amino acids, perhaps including proline, are probably involved in porphyrin synthesis in vivo. Evidence that this is the case has been reported in a recent paper[2] indicating that the excretion of porphyrin in the feces of rats is diminished in animals fed a diet low in protein. An anemia develops concomitantly. If porphyrin excretion is an index to porphyrin synthesis under these conditions, it follows that porphyrins are synthesized in the rat from amino acids derived from dietary protein.

Substantiation and extension of this observation have been reported[3] in direct studies on a human subject using the isotope tracer technic. The subject was given aminoacetic acid which contained isotopic nitrogen. Blood samples were withdrawn at intervals for ninety-nine days, and the porphyrin derivative hemin was crystallized and analyzed for isotopic nitrogen content. A relatively high value was obtained, thus demonstrating the participation of aminoacetic acid in the synthesis of porphyrin in the human subject.

Using a similar technic in rats, the Columbia University investigators found that neither leucine[4] nor ammonia[5] was directly concerned with porphyrin synthesis, whereas acetic acid[6] (fed as deuterio acetate) was used for this purpose, since it appeared in the isolated hemin crystals.

The foregoing observations thus indicate that the porphyrins are synthesized in the organism from relatively simple chemical substances, including aminoacetic acid and possibly acetic acid. These observations afford another example of "the wisdom of the body" in forming an essential biologic substance from simple, plentiful chemical units. The studies also suggest the improbability that clinical anemias in man may result from an inadequate porphyrin synthesis.

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[1] Fischer, H., and Kiele, K.: Annalen **468**: 98, 1929. Fischer, H., and Fink, H.: Ztschr. f. physiol. Chem. **280**: 123, 1944.

[2] Orten, J. M., and Keller, J. M.: Fed. Proc. **4**: 100, 1945.

[3] Shemin, David, and Rittenberg, David: J. Biol. Chem. **159**: 567 (July) 1945.

[4] Schoenheimer, Rudolf; Ratner, S., and Rittenberg, David: J. Biol. Chem. **130**: 703 (Oct.) 1939.

[5] Rittenberg, David; Schoenheimer, Rudolf, and Keston, A. S.: J. Biol. Chem. **128**: 603 (May) 1939.

[6] Bloch, K. E., and Rittenberg, David: J. Biol. Chem. **159**: 45 (June) 1945.

HEALTH PRACTICE INDEXES

The Committee on Administrative Practice of the American Public Health Association offers the health administrator through its "Health Practice Indices" an opportunity to check his work against prevailing practices in the same area of administration.[1] Throughout its evaluation procedures the American Public Health Association has measured performance against the best existing practices rather than against theoretical ideals.

This index volume permits the health officer to check his own department in eighteen principal administrative areas. There are eighty items in the index, and for each there is a chart. Two hundred and forty-three communities in eighteen states reported their activities.

These health practice indexes have been extremely useful. Perhaps the most striking use of them is by the health department of the city of Racine, which in its 1944 report published these indexes in black with a red bar indicating the position of the city in each chart. Thus the citizens were given a complete and wholly frank evaluation of the work of public health agencies in their community.

Among the two hundred and forty-three communities in eighteen states evaluated in these indexes some of the fundamentals of public health service have not yet been developed to their full efficiency. Approved water supplies serving 100 per cent of the people are available in less than 25 per cent of communities of between 1,000 and 2,500 population; the median is 90 per cent served, but some communities run as low as 20 per cent and a few serve none. With respect to sewage disposal the record is similar but not as favorable. Rural school children are being served with water supplies of doubtful safety in a large number of communities. The median figure representing population served with satisfactory drinking water is near 75 per cent, and the lower one fourth of the communities reporting had 50 per cent or less. The same situation exists with respect to disposal of excreta. Vaccination against smallpox among children under 5 years of age indicates that the median is only 18 per cent, and below this the percentage fades rapidly to zero. Actually only two communities exceed 70 per cent, and most of the upper quartile ranges between 60 and 30 per cent of preschool children immunized against smallpox.

Current Comment

COMPLICATIONS FOLLOWING ANTIRABIC TREATMENT

Human rabies is invariably fatal. The period of incubation is from thirty to sixty days and by vaccination effective immunity can be created in a shorter time. The practice is to begin preventive vaccination as soon as possible after bite by a rabid or suspected animal. Casals[1] summarizes the results of this method of prevention during the past fifteen years. The death rate from rabies in more than 1,000,000 cases throughout the world analyzed by McKendrick[2] was 0.33 per cent. This figure does not give the exact value of antirabic vaccination of human beings because the facts as to exposures are not well enough known. In most of the cases exposure to rabies was unproved or doubtful. It is noteworthy that treatment begun as late as fourteen days after exposure appears to have given as good results as that begun earlier. The incidence of complications has been low. Reactions at sites of inoculations are of minor significance. Peripheral neuritis and dorsolumbar myelitis usually end in recovery. The most severe complications are of paralytic nature, often of ascending type. McKendrick lists 181 paralytic complications in 1,060,832 treatments, of which 48 were fatal. This kind of complication occurred more frequently with vaccine of attenuated virus (Pasteur vaccine) than with virus inactivated with phenol (Semple vaccine) or with heat. As it has not been demonstrated that any one of these vaccines is definitely superior to the others, only vaccines of inactivated virus should be used to prevent rabies in human beings, as the risk of dangerous complications will be smaller.

THE G. I. BILL OF RIGHTS

Changes in the G. I. Bill of Rights were effected by legislation passed by the Congress just before the recess. Some are of particular interest to former medical officers who have applied or who will apply for the benefits of the federal law. The requirement in the original law that a veteran over 25 years of age at the time of entry into service must show that his education was interrupted by service in order to be entitled to education benefits beyond the one year period was eliminated. The time within which a course must be initiated was extended from two to four years and the time within which education or training may be afforded from seven to nine years after the termination of the war. The subsistence allowance for a veteran without dependents was increased from $50 to $65 a month and for a veteran with dependents from $75 to $90 a month. The benefits of the titles relating to education and loans were made available to veterans on terminal leave with the exception that subsistence allowances are not payable during that period. This particular amendment was made effective as of June 22, 1944, the date of enactment of the original law. In the case of short, intensive postgraduate or training courses of less than thirty weeks, payment of the reasonable cost therefor was authorized but there will be charged against the veteran's period of eligibility the proportion of an ordinary school year which the cost bears to $500. Not in excess of $500 may be paid for any such course. As an example, if a short course of four weeks costs $250, the entire amount can be paid and the veteran will have utilized one-half a year of his period of eligibility. Heretofore the cost of such a short course has been paid on a pro rata basis. Another amendment, after continuing the limitation of $500 on the amount that may be paid to an institution on behalf of a veteran during an ordinary school year, provides that the veteran may elect to have the customary charges of the institution paid in excess of the limitation, in which event there will be charged against his period of eligibility the proportion of an ordinary school year which such excess bears to $500. This amendment permits a veteran to elect to foreshorten his period of eligibility by having paid for him the costs of an educational course in excess of the normal $500 limitation. The loan provisions of the original act were amended in numerous respects in an effort to simplify procedures, but now, as heretofore, the initial loans must be negotiated with a lending agency. Loans are not made by the Veterans Administration.

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[1] Health Practice Indices, 1943-1944, published by the American Public Health Association, price not indicated.

[1] Casals, J.: A Current View of the Rabies Problem, Ann. Int. Med. 23: 74 (July) 1945.

[2] McKendrick, A. G.: A Ninth Analytical Review of Reports from Pasteur Institute on the Results of Antirabies Treatment, Bull. Health Organ., League of Nations 9: 31, 1940.

THE EMPIRICAL FORMULA OF BETA-LACTOGLOBULIN

Proteins are built up of many amino acid units characterized by their complex structures. In addition to the large number of units there exists an astronomically large possible number of arrangements of the amino acids in the straight chain peptide. The complete analysis or synthesis of a protein therefore becomes an extremely difficult task. With the advent of the microbiologic methods of analysis, new tools for the determination of amino acids are made available. These methods require smaller samples, are highly specific and are comparatively rapid. Using some of the orthodox chemical methods in conjunction with microbiologic methods, Brand and his co-workers[1] have determined the complete empirical formula of a pure protein, beta-lactoglobulin. The lactoglobulin unit consists of 370 amino acid residues, with 366 peptide linkages. In addition, it was found that the constituent amino acids are connected by the typical peptide linkage and that other methods of combination, such as ester, anhydride or imide, if present at all, could exist only in extremely small numbers. The determination of the empirical formula of a protein in this manner is an achievement; it has led closer to the solution of many of the fundamental problems in protein chemistry such as digestibility, immunologic specificity and the seat of activity in the protein hormones and enzymes.

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[1] Brand, E.; Saidel, L. J.; Goldwater, W. H.; Kassell, B., and Ryan, F.: J. Am. Chem. Soc. **67**: 1524 (Sept.) 1945.

THE RELATION OF INFANTILE PARALYSIS TO EPIZOOTIC AVIAN PARALYSIS

The first epidemic of infantile paralysis in Argentina was apparently in 1895. A good many outbreaks have taken place there since then. In the epidemic of 1942-1943 most cases developed in November, December and January. A recent monograph by Rillo and Lagrotta[1] presents a summary of views concerning this disease. The full account in the monograph of Preioni's observations and theories on the relations of infantile paralysis to paralytic epizootics in chickens and other birds raises the question whether a new source and a new method of natural transmission of the virus have been found. The simultaneous occurrence of paralytic disease in poultry and infantile paralysis has been recorded by several observers, but no one seems to have studied fowl paralysis in relation to the human disease so extensively and with such far reaching application as Preioni.[2] The paralytic fowl epizootic is described by him as corresponding closely to infantile paralysis in both clinical manifestations and nervous lesions; that is, the basic process is an acute anterior poliomyelitis. He assumes that in birds the infection is transmitted by the bite of a chicken louse (Dysmanisium avis) and that birds may be vehicles as well as victims of lice. The louse may be conveyed also by adhering to the surface of eggs and is of course widely distributed in poultry yards and houses. The louse is said to bite human beings, mostly on the legs. As it feeds on the blood and lymph of poultry and other birds, such as sparrows, it may by its bite transfer to human beings virus and other infectious agents from infected birds. In fact, this is the way in which infantile paralysis is spread, according to Preioni's theory. It is assumed that the virus enters through the bite of the skin and passes by perineural lymphatics to the central nervous system, the particular lesions and symptoms depending largely on the location of the bite. The immediate reaction about the bite is not described in detail but referred to as a local lymphangitis. According to the presentation in the monograph,[1] Preioni's conception is supported mainly by the similarity of the lesions in the anterior spinal horns and the spinal ganglions in the poultry paralysis studied by him and in infantile paralysis. That the poultry paralysis "always precedes and accompanies" infantile paralysis is not established by the facts at hand. So far experimental results do not appear to have been obtained bearing on the relation of fowl paralysis to infantile paralysis. Moreover inoculations of monkeys may be needed to show whether fowl epizootics are caused by the virus of infantile paralysis and also whether the incriminated louse can carry the virus.

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[1] Rillo, Armando B., and Lagrotta, Alfredo: Enfermedad de Heine-Medin (*Parálisis Infantil*), Buenos Aires, Editorial Olivé, 1944, pp. 125-146.

[2] Preioni, C.: El origen de la parálisis infantil (enfermedad de Heine-Medin), Semana méd. **2**: 1149 (Nov. 13) 1941; Nuevos aportes anatómicos y clinicos al origen de la enfermedad de Heine-Medin, ibid. **1**: 1321 (June 29) 1944.

MEDICINE AND THE WAR

ARMY

ARMY AWARDS AND COMMENDATIONS

Capt. Arthur B. Coltman

The Military Merit Medal was recently awarded to Capt. Arthur B. Coltman, formerly of Philadelphia. The citation accompanying the award mentioned with considerable detail his service to the Philippine Commonwealth and the Army of the Philippines. "During the period from Dec. 26, 1944 to Jan. 24, 1945, while serving as Philippine Civil Affairs Medical Officer, he organized dispensaries and hospitals, instituted sanitary control measures and by his painstaking and unselfish efforts rendered very valuable medical service to the civilian population of Leyte. On Jan. 29, 1945 he participated in an amphibious landing on Luzon and aided considerably in securing indispensably needed hospitals, dispensaries, medical relief supplies and food for the use of the war devastated civilians of the province of Zambales. On arriving in Manila on Feb. 23, 1945, regardless of his personal safety, he proceeded to form nineteen medical installations in various sections of the city; with the aid of civilian doctors and nurses these hospitals provided shelter, food, medical attention and life-saving surgical procedures for thousands of civilian battle casualties daily. During June and July of 1945, while he was serving with the Manila Department of Public Health, his sincere and untiring efforts were successfully directed at the problems of immunizing the civilian population of Manila against cholera, typhoid and dysentery, thereby helping considerably in averting the outbreak of an epidemic of this war torn city. From July 28, 1945 to Oct. 10, 1945 Captain Coltman, serving with the Medical Liaison Section of the United States Army Training Group, contributed immeasurably to the training of Philippine Army medical personnel." Dr. Coltman graduated from Hahnemann Medical College and Hospital, Philadelphia, in 1943 and entered the service Jan. 14, 1944.

Major General Robert H. Mills

Major Gen. Robert H. Mills, director of the dental division of the Office of the Surgeon General, was recently awarded the Distinguished Service Medal, which was presented by Major General Norman T. Kirk for "his performance of exceptionally meritorious service in a position of great responsibility." The citation recalled that "with exceptional foresight, organizing ability and leadership he provided and maintained a superior dental service, based on sound plans and professional policies, for the millions in the Army. Under his guidance the Army Dental Corps was expanded from several hundred to more than fifteen thousand officers, and dental facilities, including clinics and laboratories, were expanded proportionately. The dental rehabilitation of more than a million men accomplished under his supervision represented a tremendous contribution to the conservation of fighting manpower and to the future health of the nation. He skilfully coordinated the activities of the Dental Corps with other federal agencies and the civilian dental profession. Through his unremitting efforts to achieve exceptional standards of dental care General Mills made a notable contribution to the war effort." The award was presented at the beginning of a two day conference of service command dental surgeons which was under the direction of General Mills.

Lieutenant Colonel George F. Evans

The Legion of Merit was recently awarded to Lieut. Col. George F. Evans, formerly of Clarksburg, W. Va. Accompanying the award was a citation "for exceptionally meritorious conduct in the performance of outstanding services in North Africa and Italy from Jan. 27, 1943 to May 8, 1945. As chief of medical service in the 29th Station Hospital in North Africa and later in a similar capacity with the 32d Station Hospital in Italy, Lieutenant Colonal Evans through his superior performance of duty contributed materially to the medical service of both hospitals. Regardless of personal sacrifice, he spent many extra hours in organizing and developing his department, instructing the younger officers in the records. His tactful dealing with all ranks and his ability to work under pressure set a high example for other members of his organization. His superior professional abilities and outstanding devotion to duty reflect great credit on Lieutenant Colonel Evans and the Army Medical Service." Dr. Evans graduated from McGill University Faculty of Medicine, Montreal, in 1923 and entered the service Aug. 25, 1942.

Captain Herbert L. Songer

Capt. Herbert L. Songer, formerly of Lincoln, Kan., was recently awarded the Silver Star for gallantry in action, the Bronze Star for meritorious achievement, the Oak Leaf Cluster to the Bronze Star and the Purple Heart when he was wounded in action. The awarding of the Bronze Star was "for meritorious achievement in connection with military operations against the enemy in the European Theater of Operations from Aug. 21, 1944 to Dec. 2, 1944. The professional skill, loyalty and courage with which Captain Songer executed his responsibilities as battalion surgeon contributed immeasurably to the health of his organization's personnel and to the prompt and efficient treatment of battle casualties during the invasion of western Europe." Dr. Songer graduated from the University of Kansas School of Medicine, Kansas City, in 1938 and entered the service Nov. 1, 1942.

Colonel William W. McCaw

The Legion of Merit was recently awarded to Col. William W. McCaw, formerly of Washington, D. C., for his work as department surgeon since March 1944. The citation accompanying the award emphasized his "exceptionally meritorious conduct in the performance of outstanding services during the period March 18, 1944 to Sept. 2, 1945." Colonel McCaw, it continued, "as Alaskan department surgeon, was responsible for supervision of all elements of the medical service in this theater. Health and sanitation of the command, training of troops in military sanitation and first aid, location and operation of hospitals and other medical establishments and of the evacuation service, and supervision of training of medical troops are all functions which came directly under his supervision. By his initiative and untiring devotion to duty the efficiency in accomplishing his mission has earned commendation in all his assignments. His intelligence, industry and devotion to duty are exemplified by the high standard of medical care achieved in this department. His professional ability, judgment and understanding of the problems peculiar to Alaska and the Aleutian Islands contributed much to the health of this command and reflects great credit on himself and on the military service." Dr. McCaw graduated from the University of Pittsburgh School of Medicine in 1916 and entered the service Oct. 29, 1917.

Colonel Sydney L. Stevens

Col. Sydney L. Stevens, formerly of Indianapolis, was recently awarded the Bronze Star for meritorious achievement in connection with military operations. The official citation accompanying the award stated that "during the movement of his division he directed the treatment of the wounded and sick with outstanding efficiency." Dr. Stevens graduated from Indiana University School of Medicine, Indianapolis, in 1937 and entered the service Jan. 10, 1941.

Lieutenant Colonel Harwell Wilson

The Legion of Merit was recently awarded to Lieut. Col. Harwell Wilson, formerly of Memphis, Tenn. The citation accompanying the award read, in part, "The first sixty day period of the hospital's operations in Italy, Lieut. Col. Wilson's surgical service section treated nearly 4,000 cases, most of which were combat casualties from American and French colonial armies. Through unceasing and highly conscientious labor, and by virtue of his outstanding skill as a surgeon, marked devotion to duty and high qualities of leadership, surgical care of the highest order was afforded to thousands of patients, and an exceptionally low death rate was maintained." Dr. Wilson graduated from Vanderbilt University School of Medicine, Nashville, Tenn., in 1932 and entered the service July 15, 1942.

Major David Borak

Major David Borak, formerly of New York, was recently awarded the Bronze Star for "outstanding medical work in the field with Chinese forces." Dr. Borak graduated from the Faculty of Medicine of the University of Vienna in 1937 and entered the service Oct. 10, 1942.

Major Albert M. Betcher

The Bronze Star was recently awarded to Major Albert M. Betcher, formerly of Long Beach, N. Y., "for meritorious service in connection with military operations, as anesthetist, 15th General Hospital, from Sept. 24, 1944 to May 8, 1945. Major Betcher efficiently set up and coordinated the operating room section of the hospital. While coordinating heavy operating schedules and supervising administering of anesthesia, he taught two week courses in anesthesia for medical officers and nurses. By his superior professional skill and devotion to duty, Major Betcher has saved the lives and hastened the recovery of many wounded." Dr. Betcher graduated from St. Louis University School of Medicine in 1935 and entered the service March 10, 1941.

VETERANS

THE NEUROPSYCHIATRIC PROGRAM

[Note.—Following is an appeal from Major General Paul R. Hawley, acting surgeon general, Veterans Administration, to physicians interested in neuropsychiatry.—Ed.]

The Neuropsychiatric Service of the Veterans Administration has positions available to doctors of varying degrees of training and experience. There are openings in general and neuropsychiatric hospitals, in outpatient clinics, in administrative positions in branch offices, and in the central office in Washington, D. C.

The Office of Postgraduate Instruction and Research is meeting success in obtaining the cooperation of medical colleges to further the teaching program in hospitals. The doctor entering the Veterans Administration can be assured that graduate training will be available, designed toward qualification for the American Board of Psychiatry and Neurology, if such is his or her desire.

Our thirty-three neuropsychiatric hospitals have acute, semiacute, chronic and semipermanently invalided patients. There are urgent psychotic patients in need of immediate treatment, those who have endured severe situational illness in the armed forces in various stages of recovery, and outpatients for follow-up study, in addition to the more chronic groups. In this rich assortment of clinical material, opportunities will be available for all types of study and treatment.

In fifty-one general hospitals an active neuropsychiatric service is being created as well. The emphasis in these units will be on active treatment of cases with good prognosis, and an attempt will be made whenever possible to complete treatment at the general hospital level. In such installations an opportunity for a concentrated experience in therapy as well as diagnosis will be afforded the members of the staff.

Another feature of general hospitals is the readjustment center for patients with neuroses. It is planned to establish such centers in hospitals as quickly as possible. Doctors working in these units will have opportunity to use all forms of therapy used in the armed services on acute neuroses, as well as some of the more prolonged technics—group therapy and brief psychotherapy in various forms.

Those physicians interested primarily in neurology, and all psychiatrists who wish to obtain experience in this field, will find opportunities to extend their studies in this direction. Plans call for an increase in our activities in neurology throughout our hospitals. As a part of this, a training program is projected in electroencephalography for both doctors and technicians in the near future.

Mental hygiene clinics will be established in thirty-one of the larger cities of the country. Positions will be available here for full time or part time clinical work. These installations will afford the clinician the satisfying experience of preventing disabling neurosis in many of his cases, plus the equal satisfaction of seeing to it that the more serious cases are hospitalized in an early stage when therapy will be of greatest benefit.

Financial remuneration for full time work in the Veterans Administration begins in Civil Service grade P & S-3 at a salary of $3,640 per annum and is graduated up to P & S-8 at a salary of $9,800 per annum. Many openings are available at P & S-4 ($4,300 per annum) and P & S-5 ($5,180 per annum). For those who wish to inquire into higher administrative positions, these will be available in grade P & S-6 ($6,230 per annum) and grade P & S-7 ($7,175 per annum). All pay schedules listed are basic and provide retirement benefits. In a bill already passed by the Congress to establish a medical department in the Veterans Administration, a 25 per cent increase is contemplated for all physician qualified by specialty boards.

Those who are interested in a career in the Neuropsychiatric Service of the Veterans Administration should make application to Dr. Daniel Blain, Acting Director, Neuropsychiatric Service, Veterans Administration, Washington 25, D. C., stating a preference as to type and location of installation preferred and enclosing a short summary of civilian and military training, experience and qualifications. Positions are available for part time consultants as well, and inquiry concerning them can be addressed in the same manner, or through Deans' Committees of affiliated medical schools.

Interested physicians are cordially invited to come to the central office in Washington, D. C., for personal interview with Dr. Blain's staff. It is preferable that this be done by appointment.

For those interested in training in neuropsychiatry per se, the Veterans Administration is planning to augment the facilities now available throughout the country. One such training center has been established and is in operation in Topeka, Kan., under the direction of Dr. Karl Menninger. Short refresher courses are available as well as a three year comprehensive training course in neurology and psychiatry, designed toward rendering its students eligible for examination by the National Board of Psychiatry and Neurology. Information concerning this school can be obtained by direct inquiry to Dr. Karl Menninger, Veterans Administration Hospital, Topeka, Kan. Opportunities for training will soon be available in several other locations.

Although much of what has been said is applicable to medicine in general in the Veterans Administration, I have addressed myself to America's neuropsychiatrists specifically because of our great need for your cooperation in our program. The physicians in this specialty in our organization are sorely overtaxed, and they need your assistance. On your willingness to lend them a hand depends the future success of their program for the returned veteran.

VETERANS' RESEARCH AIDE

Major William T. Doran, Bronxville, N. Y., was recently appointed assistant director of postgraduate instruction and research of the Veterans Administration. Major Doran recently returned from duty with the Medical Corps of India and China. He will assist Dr. Paul Magnuson in organizing postgraduate instruction in Veterans Administration hospitals.

MEDICAL OFFICERS RELEASED BY THE NAVY

NAVAL RESERVE MEDICAL OFFICERS RECOMMENDED FOR RELEASE FROM ACTIVE DUTY

California

Arnold, Walter F.	Long Beach
Atsatt, Rodney F.	Santa Barbara
Behrendt, Robert A.	Los Angeles
Binder, Clifford F.	Alameda
Chesbro, Wayne P.	Gilroy
Childers, Leland A.	San Jose
Hodges, Francis T.	San Francisco
Hoffmann, Paul E.	San Francisco
Lounsberry, Ray C.	La Jolla
McRae, Colin C.	San Francisco
Nesburn, Henry R.	Los Angeles
Troensgaard, Clement C.	Berkeley
Wineland, Albert J.	Burbank
Wright, John M.	Pasadena
Zobel, Jerome F.	San Francisco

Georgia

Bishop, Everett L.	Atlanta
Clay, Clement C.	Atlanta
Cooper, Talbert	Milledgeville
Gerdine, Linton	Athens
Glenn, Wadley R.	Atlanta
Herman, Emory C.	LaGrange
Hobby, Albert W.	Atlanta
Lewis, John R., Jr.	Louisville
McCord, Ralph B.	Rome
McDonald, James J.	Athens
McGee, Harry H.	Savannah
Miller, Harry A.	Monroe
Morris, Jefferson E.	Sylvester
Philpot, William K.	Augusta
Shepard, Virgil D.	Atlanta
Thomson, James L.	Eastman
Williams, William J.	Augusta

Illinois

Andrews, Albert H. Jr.	Chicago
Baldree, Charles E., Jr.	Belleville
Barber, Knowlton E.	Evanston
Carpenter, Morgan G.	Elgin
Choisser, John E.	Eldorado
Collins, Robert B.	Rock Island
De Costa, Edwin J.	Chicago
Dolan, Martin A.	Chicago
Goldhaber, Samuel J.	Chicago
Hamilton, Howard B.	Oak Park
Hunting, Ralph D.	Chicago
Hurley, Douglas C.	Elgin
Ingram, Myron I.	Chicago
King, Edward P.	Chicago
Landberg, Harry M.	Chicago
Neber, Ernest N.	Carbondale
Nesselrod, Jerrold P.	Evanston
Nowlin, Owen W. E.	Farmer City
Peterson, Andrew C.	Chicago
Phillips, Spencer K.	Freeport
Ross, Perry W.	Chicago
Rotter, Charles C.	Alton
Sala, Roland O.	Rock Island
Steinberg, Richard M.	Fairbury
Taubert, Russell K.	Pekin
Toman, Andrew J.	Chicago
Waldman, Leonard F.	Chicago
Walker, Wayne R.	Pekin
Waner, William L.	Evanston
Wente, Constantin F.	Dundee

Indiana

Held, Albert H.	Huntingburg
Gross, Maurice E.	Lagoda
Leich, Charles F.	Evansville
Mattox, Don M.	Terre Haute
McMichael, Robert M.	Muncie
Moravec, Arthur E.	Fort Wayne
Morrical, Russel J.	Longansport
Olcott, Charles W.	Aurora
Smith, Edwin Rogers	Indianapolis
Taylor, Frederic W.	Indianapolis
Tindall, William R.	Shelbyville

Louisiana

Brewtser, Walter R.	New Orleans
Chapman, Sims A.	New Orleans
Farrington, Nolley C.	New Orleans
Harrell, Forrest W.	Jennings
Hatchette, Charles V.	Lake Charles
Lapham, Maxwell E.	New Orleans
McCreary, Pegram L.	Coushatta
McMillan, Thomas E.	New Orleans
Miller, Morell W.	New Orleans
Moore, Robert E.	DeRidder
Oakley, John F.	New Orleans
Reed, Carson R., Jr.	Shreveport
Stern, Solomon B. Jr.	New Orleans
Stone, James K.	New Orleans
Strange, Jack E.	New Orleans
Walls, Edward G.	New Orleans
Webb, James S., Jr.	New Orleans

Maryland

Hollander, Asher	Baltimore
Mermod, Roger J.	Annapolis

Massachusetts

Adams, Herbert D.	Wesley Hills
Allman, Charles H.	Boston
Bean, Harold C.	Salem
Belcher, Charles D., Jr.	Winthrop
Dalrymple, Sidney C.	Brookline
Devlin, William J.	Springfield
Duggan, George L.	Lowell
Garrey, Walter E.	Boston
Gleason, Ralph S.	Wellesley
Hales, Jesse C.	Gardner
Johnson, Raymond E.	Newton Highlands
Kennard, Harrison E.	Newton Centre
Kilfoyle, Thomas E.	Salem
Mobbs, Robert F.	Woburn
Mullen, George T.	North Adams
Nunes, Joseph E., Jr.	Taunton
Nye, Lucius S.	Wareham
Seelye, Edwin B.	Worcester
Shedden, William M.	Boston
Shepardson, Robert B.	Reading

Michigan

Brainard, Clifford W.	Battle Creek
Brough, Glen A.	Detroit
Ellet, William C.	Benton Harbor
Haight, Harry H.	Crystal Falls
Hand, Eugene A.	Saginaw
Harris, Bradley M.	Ypsilanti
Hartzell, John B.	Groose Pt. Frams
Hill, Edward J.	Birmingham
Hoyt, Donald F.	Pontiac
Keagle, Leland R.	Battle Creek
Lemke, Walter M.	Shelby
Loeffler, Arthur J.	Detroit
Ludwixk, John E.	Jackson
McGraw, Arthur B.	Grosse Pointe
McGraw, Arthur B.	Grosse Pt.
McIntyre, Kenith S.	Hastings
O'Donnell, Dayton H.	Detroit
Roberts, Melvin D.	Hancock
Schaefer, Robert L., Jr.	Ypsilanti
Toothaker, Kenneth W.	East Lansing
Wade, Burt O.	Ann Arbor
Walcott, Carver G.	Fenton
Warner, Harold W.	Detroit
Williams, Robert J.	Monroe

Missouri

Altheide, John P.	St. Louis
Bills, Marvin L.	Kansas City
Dobbs, Otto R.	St. Louis
Freimuth, Louis E.	Clayton
Horwitz, Irwin B.	Clayton
Jarvis, James A.	Kansas City
Lee, Chester E.	Kansas City
Wood, George F.	Fulton

New Jersey

Annitto, John E.	Jersey City
Bruce, Gordon M.	Englewood
Gindhart, Floyd D.	Trenton
McKeever, William J.	Jersey City
Pieper, Howard C.	Long Branch
Rothouse, Burnet	East Orange
Shulman, Murray W.	Newark
Tell, Meyer E.	Passaic
Worcester, John T.	Englewood

New York

Auster, Lionel S.	New York
Barnard, James H.	New York
Claiborne, Elmer M.	New York
Denneen, Edward V.	New York
Edson, George N.	Jackson Hts.
Feuer, Samuel G.	Brooklyn
Furman, Matthew R.	New York
Garlick, Thomas B.	Rochester
Gray, Julius C.	New Rochelle
Green, Leo A.	Long Island City
Hanisch, Charles M.	Brooklyn
Harbach, Francis O.	Skaneateles
Johnson, Elmer B.	Brooklyn
Jones, Quentin Adams	Utica
Kelley, John F.	Utica
Lake, Michael	New York
McCarthy, Eugene G.	Richmond Hill
McCarthy, Raymond J.	Buffalo
Meredith, Richard S.	New York
Perkins, Orman C.	Brooklyn
Russell, Hollis K.	White Plains
Santy, Albert C.	New York
Savarese, Lawrence A.	Brooklyn
Twinem, Francis P.	New York
Waldman, Philip H.	Jamaica

Rhode Island

Baldridge, Robert R.	Providence
Einhorn, William L.	Newport
Hanson, Frederick C.	Providence
Hubbard, John D.	Edgewood
Hughes, William N.	Providence
Marquis, Gordon	Pawtucket
Rhumann, Edward F.	Cranston
Robinson, Nathaniel D.	Pawtucket
Schwab, William J.	Providence
Williams, Robert J.	Apponang

South Carolina

Belk, James C.	Kershaw
Bennett, Thomas W.	Columbia
Bowen, Harold J., Jr.	Charleston
Cranz, Oscar W.	Kingston
Smith, Keitt Hane	Greenville

South Dakota

Billion, Thomas J., Jr.	Sioux Falls
Ferris, William T.	Chamberlin
Garrett, Edwin E.	Doland
Gelber, Maksymiljan R.	Aberdeen
Soe, Carl A.	Lead
Underdahl, Laurentius O.	Centerville
Williams, Delbert B.	Mitchell

Utah

Daynes, Byron W.	Salt Lake City
Galligan, John J.	Salt Lake City
Holley, Edward B.	Salt Lake City
Pendleton, Ralph C.	Salt Lake City
Sundwall, Olof	Murray

Vermont

Lockwood, Jay R.	West Rutland
Ross, Stewart	Rutland
Shaw, Christopher C.	Bellow Falls

Puerto Rico

Slagle, Thomas D.	Santurce
Wall, Garton E.	Ewa, Oahu

ORGANIZATION SECTION

Medical Legislation

DEPARTMENT OF MEDICINE AND SURGERY IN THE VETERANS ADMINISTRATION

An Analysis of H. R. 4717 Prepared by the Bureau of Legal Medicine and Legislation, American Medical Association

Congressional action has been completed on H. R. 4717, a bill to create in the Veterans Administration a Department of Medicine and Surgery. While he disclaimed perfection for the legislation and frankly recognized that it contained objectionable provisions, the Acting Surgeon General of the Veterans Administration, Major Gen. Paul R. Hawley, urged that Senate action on the bill be not delayed in an effort to remove those provisions. He stated before the Senate Committee on Finance that unless action on the bill was completed before the Christmas recess the medical service of the Veterans Administration would "suffer further grave consequences which may well be irreparable. In the interest of the thousands of disabled veterans who have, by their sacrifices, earned better medical care than they are now receiving, I urge immediate action upon this bill." Responding to this plea, the Senate passed the bill without amendment.

In the opinion of the Senate Committee on Finance, legislation to make available a better quality of medical care for veterans should (1) incorporate adequate provisions as to organization and authority without military aspects; (2) provide by statute certain positions with adequate salary stipulations, with specified salary ranges for physicians, nurses and dentists, and a special salary range for attendants; (3) authorize appointments to certain specified positions without regard to civil service, by the Administrator of Veterans' Affairs; (4) provide a civil service system of retirement in preference to a military system; (5) retain classified civil service for positions not specifically exempted therefrom by the legislation; (6) incorporate authority to dispense with the services of unsatisfactory or disqualified employees in certain categories without the restrictions of the laws and regulations pertaining to civil service, and (7) incorporate such special provisions as are necessary to insure an adequate and complete medical and hospital service in the Veterans Administration. H. R. 4717, as viewed by the committee, will meet these objectives.

THE DEPARTMENT OF MEDICINE AND SURGERY

The new department will include an Office of the Chief Medical Director, Medical Service, Dental Service, Nursing Service and Auxiliary Service. The Chief and Deputy Medical Directors must be qualified doctors of medicine and will be paid a salary of $12,000 and $11,500 a year, respectively. Provision is made for the appointment of eight Assistant Medical Directors, one of whom will be a qualified doctor of dental surgery and will be directly responsible to the Chief Medical Director for the operation of the Dental Service. Each such Assistant Medical Director will be paid a salary of $11,000 a year. There will be a Director and Deputy Director of Nursing Service at a salary of $8,000 and $7,000 a year respectively. A Chief Pharmacist, Chief Dietitian, Chief Physical Therapist and a Chief Occupational Therapist will each be paid a salary of $6,000 a year. All of these appointments will be made by the Administrator of Veterans' Affairs for a four year period, and reappointments may be made for successive like periods. The administrator may remove an appointee for cause.

Section 4 authorizes the employment of additional personnel, including doctors, dentists, nurses, managers of hospitals, homes and centers, pharmacists, physical therapists, occupational therapists, dietitians, pathologists, bacteriologists, chemists, biostatisticians and other medical and dental technologists.

QUALIFICATIONS FOR APPOINTMENT

A person to be eligible for appointment to the Department of Medicine and Surgery must be a citizen of the United States. For appointment in the Medical Service, the appointee must hold the degree of doctor of medicine or of doctor of osteopathy from a college or university approved by the Administrator, have completed an internship satisfactory to the Administrator and be licensed to practice medicine, surgery or osteopathy in one of the states or territories of the United States or in the District of Columbia. Similar qualifications are included to apply to appointments in the Dental Service, in the Nursing Service and in the Auxiliary Service. Persons on terminal leave from the armed forces may be appointed and may be paid for their services rendered under such appointment notwithstanding any law or regulation to the contrary.

Appointments of physicians, dentists and nurses will be made only after qualifications have been satisfactorily established in accordance with regulations prescribed by the Administrator and without regard to civil service requirements. Appointments authorized by section 4 will be for a probationary period of three years. The record of each person serving under an appointment in the Medical, Dental and Nursing services will be reviewed from time to time by a board appointed in accordance with regulations by the Administrator. If the board finds any appointee not fully qualified and satisfactory, he will be separated from the service. Physicians, dentists and nurses serving in the present Medical Service will be continued in their present positions until the Administrator shall have determined their qualifications.

PROMOTIONS

Promotions of physicians, dentists and nurses will be made only after examination given in accordance with regulations prescribed by the Administrator. Automatic promotions within grade may be made in increments of the minimum pay of the grade in accordance with the regulations.

PRESERVATION OF CIVIL SERVICE STATUS

The new law provides for the protection of civil service reinstatement rights in cases of those who at the time of appointment have a civil service status and whose employment in the department is not continued.

GRADES AND PAY RANGES

In the Medical Service there will be six grades beginning with the junior grade with a minimum salary of $3,640 and advancing to the chief grade, with a maximum salary of $9,800. In the Dental Service there will be five grades, ranging from the junior grade with a minimum salary of $3,640 to the senior grade with a maximum salary of $8,225. In the Nursing Service there will be four grades, ranging from junior grade with a minimum salary of $2,320 to senior grade with a maximum of $5,180. There is provision, in addition, for an Assistant Director of the Nursing Service with a salary range from $5,180 to $6,020.

The Administrator will be authorized to prescribe by regulation the hours and conditions of employment and leaves of absence of physicians, dentists and nurses.

RATING AS SPECIALISTS

The Chief Medical Director will be authorized to rate any physician appointed under section 4 as a medical or surgical specialist. No such rating may normally be given unless the physician is certified as a specialist by an American specialty board. In event that no such board exists, the rating may be given if the physician has been examined and found qualified by a board appointed by the Chief Medical Director from specialists of the Department of Medicine and Surgery holding ratings in the specialty to which the candidate aspires. In case there are insufficient specialists to constitute such a board, the Chief Medical Director may substitute consultants with comparable qualifications employed on a temporary full time, part time or fee basis.

Physicians to whom such specialist rating is given will hold it until it is withdrawn by the Chief Medical Director after a determination has been reached by a board of specialists that the physician is no longer qualified in this specialty.

Physicians who are given the rating of specialists will be entitled, in addition to their basic pay, to an allowance equal to 25 per cent of such pay, subject to the restriction that the basic pay plus the allowance may not exceed $11,000 a year.

CIVIL SERVICE RETIREMENT BENEFITS

Persons appointed to the Department of Medicine and Surgery will be subject to the provisions of and entitled to benefits under the Civil Service Retirement Act of May 22, 1920.

DISCIPLINARY BOARDS

The Chief Medical Director will be authorized to appoint disciplinary boards to determine, on notice and fair hearing, charges of inaptitude, inefficiency or misconduct. Each board will consist of not less than three nor more than five employees, senior in grade, of the Department of Medicine and Surgery. The Administrator will appoint a chairman and secretary of each board, who will have authority to administer oaths. The Chief Medical Director may appoint one or more investigators to assist in the collection and presentation of evidence, and every person against whom charges are made may be represented at the hearing by counsel of his own choice. A disciplinary board may recommend reprimand, suspension without pay, reduction in grade, and discharge from the Department of Medicine and Surgery. The Administrator will be required either to approve the recommendation as made, approve it with modification or exception, approve it and suspend further action at the time, or disapprove such recommendation; and the decision of the Administrator will be final.

APPOINTMENT OF ADDITIONAL EMPLOYEES

The Administrator will be authorized to appoint, under civil service laws, rules and regulations, such additional employees as may be necessary. Employees of the Medical Service as at present constituted, other than those previously mentioned, will receive original appointments to the department in their present civil service status on certification of satisfactory service by the manager of the hospital, home or center where such person is at present employed. The annual salary range for hospital attendants will be $1,572 minimum to $1,902 maximum.

SPECIAL MEDICAL ADVISORY GROUP

The Administrator will be required to establish a special medical advisory group composed of members of the medical and allied scientific professions, nominated by the Chief Medical Director. The duties of this group will be to advise the Administrator, through the Chief Medical Director, and the Chief Medical Director direct, relative to the care and treatment of disabled veterans and relative to other matters pertinent to the Department of Medicine and Surgery. The group will conduct regular calendar quarterly meetings, and the number, terms of service, compensation and allowances to members of the group will be in accord with existing laws and regulations.

ATTENDANCE AT MEETINGS

The Chief Medical Director will be authorized to detail designated personnel to attend meetings of associations for the promotion of medical and related sciences and to pay their expenses. Among others, the Deputy Medical Director, the eight Assistant Medical Directors and the physicians, dentists and nurses appointed under the authority contained in section 4 may be so designated.

POSTGRADUATE INSTRUCTION

The Administrator will also be authorized to afford educational opportunities to the personnel referred to in the preceding paragraph by detailing them to schools of the Army, Navy and Public Health Service and to civil institutions of learning for the purpose of increasing the professional knowledge or technical training of the personnel of the department. Such details may not be for a period in excess of ninety days in a year, will be subject to the consent of the authorities of the institutions and may not exceed 5 per cent of the personnel of the department at any one time. Tuition, transportation and educational fees of personnel so detailed will be paid. If any person authorized to attend any such course of training voluntarily leaves the service within two years after the completion of the course, he will be required to reimburse the Veterans Administration for the expenses incurred.

EMPLOYMENT ON PART TIME BASIS

On the recommendation of the Chief Medical Director, the Administrator may employ, without regard to the Classification Act of 1923, physicians, dentists and nurses on a temporary full time, part time or fee basis. Dietitians, social workers, librarians and other professional, clerical, technical and unskilled personnel may be employed on a temporary full time or part time basis at such rates of pay as the Administrator may prescribe. No temporary full time appointment may be made for a period in excess of ninety days.

RESIDENCIES

The Administrator will be authorized to establish residencies, to appoint qualified persons to such positions without regard to civil service or classification laws, rules or regulations and may prescribe the conditions of such employment, including necessary training, and the customary amount and terms of pay during the period of such employment and training.

RULES AND REGULATIONS

The Chief Medical Director with the approval of the Administrator, unless specifically otherwise provided, will be authorized to promulgate all regulations necessary to the administration of the Department of Medicine and Surgery and consistent with existing law. Such regulations will include those relating to travel, transportation of household goods and effects, and deductions from pay for quarters and subsistence and to the custody, use and preservation of records, papers and property of the Department of Medicine and Surgery.

EFFECTIVE DATE OF LAW

This law becomes effective from the date of its approval by the President.

MEDICAL BILLS IN CONGRESS

G. I. Bill of Rights

A conference report on H. R. 3749, a bill to amend the G. I. Bill of Rights, has been accepted by the House and Senate. As will appear elsewhere in this issue, this bill increases the subsistence allowance available to veterans who pursue educational or training courses, will make certain benefits available to officers while on terminal leave, will eliminate the 25 year age limitation on presumption of interruption of education, will increase the amount that may be paid by the Veterans Administration in connection with short courses pursued by veterans, will permit a veteran to elect to foreshorten his period of eligibility by having tuition charges in excess of $500 paid and amends in numerous respects the loan provisions of the existing law.

National Science Foundation Act of 1945

Senator Kilgore, West Virginia, for himself and Senator Johnson, Colorado, Senator Pepper, Florida, Senator Fulbright, Arkansas, and Senator Saltonstall, Massachusetts, has introduced, as S. *1720*, a revised bill to promote the progress of science and the useful arts, to secure the national defense and to advance the national health and welfare. It proposes to establish an independent agency in the federal government to be known as the National Science Foundation which will be administered by an administrator appointed by the President by and with the advice and consent of the Senate. The administrator will be required to consult and advise with a National Science Board the members of which will be appointed by the President, by and with the advice and consent of the Senate.

Hospital Construction

H. R. 5014, introduced by Representative Lyndon B. Johnson, Texas, proposes to enact the Federal Hospital Aid Act. It was referred to the House Committee on Banking and Currency and would authorize the Reconstruction Finance Corporation to make loans and grants in amounts not exceeding the total of $500,000,000 to municipalities and nonprofit organizations for the planning, construction, improvement and extension of hospitals and public health centers.

Veterans Administration

The bill providing for the creation of a Department of Medicine and Surgery in the Veterans Administration, H. R. 4717, has passed the Senate without amendment. It therefore retains the provision authorizing the utilization of the services of osteopaths in the treatment of veterans.

H. R. 5041, introduced by Representative Weaver, North Carolina, would authorize the Administrator of Veterans' Affairs to furnish domiciliary care and medical and hospital treatment to individuals who have served without compensation for ninety or more days as members of a selective service system civilian local board.

A bill introduced by Representative Doyle, California, H. R. 5012, proposes to dispense with the requirement that a veteran be unable to pay hospital expenses, in non-service connected cases, as a condition to hospitalization and domiciliary care in Veterans Administration facilities.

The construction of a veterans' hospital in Humboldt County, Calif., is proposed by H. R. 4739, introduced by Representative Lea, California.

Miscellaneous

A bill introduced by Representative Elston, Ohio, H. R. 4706, would authorize the appointment of members of the Navy Nurse Corps as commissioned officers of the Naval Reserve.

Washington Letter

(From a Special Correspondent)

December 23, 1945.

Hearings Are Still Awaited on Truman "Health" Program

Congress has taken a twenty-three day vacation during the Christmas and New Year's holidays but faces stormy weather in the second session of the 79th Congress, which starts January 14. President Truman's compulsory health insurance program is one of a number of measures sponsored by the chief executive which are expected to meet with considerable opposition when they come up for passage. The President has also asked for permanent status for the Fair Employment Practices Committees, authorization of labor fact-finding boards, a full employment act, compulsory military training, a higher statutory minimum wage, unification of the Army, Navy and Air Forces, legislation for domestic control of atomic energy, pay raises and pensions for members of Congress and an act to make the speaker of the House next in succession to the White House, Vice President in line of succession to the White House, instead of the Secretary of State. Mr. Truman has also appealed for rapid admission of refugees from Europe to the United States within quota limits, particularly orphaned children.

New Influenza Vaccine Going to Civilians Next Year

The War Department and the United States Public Health Service reveal that licenses have been granted to manufacturers to make the new anti-influenza vaccine for distribution to the general public. The vaccine, developed by the Army and by pharmaceutical firms during the war, will be available next year to civilians. Definite dates could not be named because of the complexity of the problems of laboratory capacity, manufacture and distribution. More than 5,000,000 doses of the vaccine were administered to soldiers in this country during the 1943-1944 epidemic, with promising results. Supplies were shipped overseas last October to army posts abroad and to military establishments in this country to vaccinate soldiers against influenza in the greatest mass test of a medicine in history. The inoculations are said to protect the average person for three to four months.

Medical Survey Boards Subject to Review Under New G. I. Bill

One feature of the revised G. I. Bill of Rights as recently approved is that Army and Navy review boards are authorized to review findings not only of retiring boards but also of medical survey and disposition boards. Some officers have claimed they were wrongly deprived of disability retirement rights. Under the revised bill thousands of veterans may take advantage of the government's offer of loan guaranties and free education. Dr. Francis J. Brown of the American Council on Education states that by next fall colleges will be swamped with applications for ex-G. I.s who can afford to attend school under the higher living allowance. This is expected to have an appreciable effect on the number of medical students starting or resuming medical studies.

Rat Population Checked for Typhus

The increasing number of rats infesting Washington has resulted in a survey of the District of Columbia rat population for typhus infection, if personnel can be obtained from the U. S. Public Health Service, Dr. D. L. Seckinger, deputy health officer for the District, stated. Already three rats captured in one downtown area have been found to be infected A 12 year old girl was infected with typhus recently but recovered, after being bitten by a rat in the K Street area

Because of shortages of nurses, doctors and facilities, 160 Washingtonians with far advanced cases of tuberculosis are not hospitalized, reports Edward K. Funkhauser, of the District of Columbia Tuberculosis Association. He advocated higher salaries for tuberculosis hospital personnel, declaring that pay in the Capital is less than in Maryland or Virginia

Veterans Administration Seeks More Army Hospitals

Major Gen. Paul R. Hawley, acting Surgeon General of the Veterans Administration, reveals that the agency will be able to use more of the armed forces surplus hospitals. Of sixty declared surplus by the Army and Navy, General Hawley and Veterans Administrator Omar Bradley have accepted only eight. The others were deemed of temporary construction or located too far from medical centers. Hawley reports that the shortage of hospital beds is becoming increasingly serious, resulting more from a lack of personnel rather than a shortage of hospital facilities.

General Bradley has informed a Negro delegation that he will make an effort to end segregation of Negroes by the Veterans Administration. Previously he had told Negroes that the agency must follow local custom.

Discharge Scores Reduced for Army and Navy Doctors

Both the Army and the Navy have cut the discharge scores for medical personnel. Male navy doctors who need 53 points now will be cut to 51 points on January 1 and to 50 on February 2. Navy nurses drop from 32 points to 29 Jan. 1. There was a 5 point cut to 65 for Dental and Veterinary Corps officers and for all Medical Corps officers except specialists. The discharge age will be reduced by three years to 45 for all Medical and Dental Corps officers except plastic surgeons. Discharge provisions for Sanitary Corps and Medical Administration Corps officers, army nurses, physical therapists and dietitians remain unchanged.

Blind Instructors Will Teach Blind War Veterans

The Veterans Administration announces that blind instructors will teach blind veterans in nine special instruction centers under a new policy of its occupational therapy department. The agency's problem with sightless veterans almost entirely concerns veterans of the first world war, of which there are 320 in Veterans Administration hospitals and 185 in its homes. Veterans' hospitals are also making increasing use of sports such as golf and has nineteen golf courses in operation, with six more being installed. It is planned to install nine-hole courses in many of its neuropsychiatric and general medical hospitals.

Committee Recommends Establishment of Mental Health Institute

The House Interstate and Foreign Commerce Committee has recommended the establishment of a $4,500,000 mental health institute at Bethesda, Md., to combat the nation's mental health problem. Informed that more than half the country's hospital beds were occupied by neurotic patients, the committee unanimously supported the bill authorizing the U. S. Public Health Service to spend $10 million a year to combat mental diseases. Representative J. Percy Priest, Democrat of Tennessee, sponsor of the bill, declared that the committee action paved the way for a coordinated program.

Federal Alcohol Clinics Advocated

Federal operation of clinics for alcoholic addicts similar to services provided for narcotic users was advocated by William H. Escaville Jr., president of the Atlas Publishing Company and a leader in Alcoholics Anonymous. Addressing a Rotary Club audience, he appealed for more constructive government and civil action to cope with alcoholism, which he said is a liability to community and family life.

Million Overseas War Veterans Return Monthly

The Senate Mead Investigating Committee was informed by Army and Navy officials that veterans are being returned from overseas at the rate of a million monthly. They also stated there were plenty of ships to bring the troops home. A million men were returned in November and as many more are expected to be brought home this month.

Committee on Scientific Exhibit

THE SAN FRANCISCO SESSION

Section Representatives to the Scientific Exhibit

The various sections of the Scientific Assembly have appointed the following representatives to the Scientific Exhibit to assist and advise in the procurement of exhibits for the San Francisco session, July 1 to 5:

Practice of Medicine
Dr. Thomas C. Garrett, 3803 Oak Road, Germantown, Philadelphia.
Surgery, General and Abdominal
Dr. Warren H. Cole. University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12.
Obstetrics and Gynecology
Dr. Frederick H. Falls, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12.
Ophthalmology
Dr. Georgiana D. Theobald, 120 Medical Arts Building, Oak Park, Ill.
Laryngology, Otology and Rhinology
Dr. Paul H. Holinger, 700 North Michigan Avenue, Chicago 11.
Pediatrics
Dr. W. Ambrose McGee, 1601 Monument Avenue, Richmond, Va.
Experimental Medicine and Therapeutics
Dr. Robert W. Wilkins, Evans Memorial Hospital, 65 East Newton Street, Boston.
Pathology and Physiology
Dr. Frank W. Konzelmann, Atlantic City Hospital, Atlantic City, N. J.
Nervous and Mental Diseases
Dr. F. P. Moersch, Mayo Clinic, Rochester, Minn.
Dermatology and Syphilology
Dr. Hamilton Montgomery, 102 Second Avenue S.W., Rochester, Minn.
Preventive and Industrial Medicine and Public Health
Dr. Paul A. Davis, 1436 Delia Avenue, Akron 2, Ohio.
Urology
Dr. John H. Morrissey, 40 East Sixty-First Street, New York.
Orthopedic Surgery
Dr. David M. Bosworth, 742 Park Avenue, New York 21.
Gastro-Enterology and Proctology
Dr. Grant H. Laing, 104 South Michigan Avenue, Chicago.
Radiology
Dr. S. W. Donaldson, 326 North Ingalls Street, Ann Arbor, Mich.
Anesthesiology
Dr. Urban H. Eversole, 605 Commonwealth Avenue, Boston.
General Practice
Dr. Wingate M. Johnson, 402 North Liberty Street, Winston-Salem, N. C.

Application blanks for space in the Scientific Exhibit may be obtained from the Section Representatives or from the Director, Scientific Exhibit, American Medical Association, 535 North Dearborn Street, Chicago 10.

Council on Medical Service and Public Relations

PREPAID MEDICAL CARE NEWS

Prepayment Plans Grow

Delaware: A recent news release by the New Castle Medical Society (Delaware) points out that "one fourth of the people in Delaware are enrolled in the state society's voluntary prepayment medical care plan." A small state, sure, but still an excellent record.

Florida: A prepayment medical service plan will soon be ready to operate in Florida. The preliminary work has been done. The application for a charter gives the name as the Florida Medical Service Corporation. Dr. Leigh F. Robinson of Fort Lauderdale is chairman of the special committee.

Indiana: Indiana approached a step nearer in the development of a prepayment plan at its November 8 house of delegates meeting. The prepayment plan committee was instructed to draft final plans for an indemnity plan and have them ready in December for a special meeting of the state council.

Kansas: Dr. Barrett A. Nelson of Manhattan, president of the Kansas Physicians' Service, has announced that the plan is about ready to start operation. All details have been worked out, and final approval of the state insurance commission is expected soon.

Albany, N. Y.: At present all of New York State is served by prepayment plans except the Albany area. At the Oct. 31, 1945 meeting of the Comitia Minora of the Albany County Medical Society a special committee headed by Dr. J. E. Heslin presented a plan to serve this area. The proposal suggested a combination cash indemnity-service plan to be set up and financed by the eleven counties to be served. Operations would be conducted in cooperation with the Blue Cross plan. Suggested income limits for the service plan were given as $2,000 for the individual, $2,500 for husband and wife and $3,500 for the family. It was further suggested that acceptable monthly rates might be 75 to 80 cents for the subscriber, $1.50 for the subscriber and one dependent and $2 for the family. The plan was approved in principle and referred back to the committee to complete the details of organization.

Community Health Councils

The Community Health Council idea as a medium for public relations and to assist in activating health programs seems to have a promising future. Until recently health councils have generally been local medical society projects. Dr. John Fitzgibbon has emphasized the importance of such councils in the statement that most public health problems could be satisfactorily solved at the local level if local medical societies would assume the leadership in a plan of cooperative effort with other interested local organizations and agencies with whose leaders friendly relations were easily made or already existent.

Another program just instituted, which presents a different and interesting approach to the problem, is that of the Michigan Health Council. This is not an effort solely by the doctors of Michigan but represents the combination and coordination of their influence and support with that of other organizations of the state which have a common interest. The council was incorporated a year ago as a joint organization of the Michigan State Medical Society, the Michigan Hospital Association, Michigan Medical Service and Michigan Hospital Service.

Public Relations

The Louisiana State Medical Society has developed a working system for getting the facts on various health bills to the doctors. The society's congressional committee and other special committees gather the facts and opinions of Congressmen. This is disseminated to the membership through editorials and articles in the *New Orleans Medical and Surgical Journal* along with special detailed reports. An advertising committee arranges for newspaper space throughout the state to get facts to the public, and the medical societies arrange for editorial comment.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

DISTRICT OF COLUMBIA

Personal.—A hospital now being constructed in Ciudad Trujillo, Dominican Republic, will be named in honor of Dr. William A. Morgan, Washington, in recognition of his services while in that country early this year.

The Davidson Lecture.—Dr. Joseph T. Roberts, adjunct clinical professor of medicine at Georgetown University School of Medicine, Washington, was chosen the Davidson Lecturer of the Medical Society of the District of Columbia in 1945. In the competition to select the lecturer Dr. Roberts submitted a paper on "The Role of the Small Vessels and Nerves of the Heart in Heart Failure and Cardiac Pains."

Faculty Changes at Georgetown.—Dr. Henry R. Schreiber, clinical professor of medicine at Georgetown University School of Medicine, was recently promoted to professor and acting director of the department of medicine, filling the vacancy that occurred with the resignation of Dr. Wallace M. Yater (THE JOURNAL, December 1, p. 970). Dr. William F. O'Donnell was promoted to professor and acting director of the department of pediatrics to succeed Dr. Joseph S. Wall, who resigned after serving as a member of the faculty for forty-seven years. Dr. Charles A. Millwater was named associate professor of clinical pediatrics to succeed Dr. John H. McLeod, resigned.

GEORGIA

Personal.—Dr. Cornelius F. Holton, Savannah, has been appointed chief surgeon of the Central of Georgia Railway, effective September 1, succeeding Dr. Craig Barrow, who died August 31.——Dr. Arthur D. Knott, Leesburg, has been made health officer of Mitchell County with headquarters in Camilla.

Richard Wood Fills New Position.—Dr. Richard Hugh Wood has been appointed associate professor of medicine at Emory University Medical School and physician-in-chief at Emory University Hospital. The position of physician-in-chief is a newly created one and Dr. Wood is the first appointee. Dr. Wood was an associate in medicine prior to entering military service.

Department of Physical Medicine Created.—Emory University on December 21 announced the establishment of a department of physical medicine at its hospital and the start of a five year program in the specialty for Atlanta and the Southeast under a grant of $167,000 from the National Foundation for Infantile Paralysis. The department will be operated by Emory University School of Medicine under the direction of Dr. Robert L. Bennett, director of physical medicine at Georgia Warm Springs Foundation and newly appointed professor of physical medicine on the medical school faculty. Dr. Bennett will divide his time between Warm Springs and Atlanta. Plans also call for appointment of an assistant director in charge of research and a staff to include a resident, two technicians and a secretary. After the first year the staff will be gradually enlarged to reach a total of seven specialists and two secretaries by the end of the five year period. The staff "will investigate various phases of physical therapy and cooperate with other departments in the university medical school in the application of physical medicine to the treatment of patients." The program will provide for extensive research in the field of physical medicine as applied to neuromuscular diseases, particularly poliomyelitis; a schedule of training for doctors in physical medicine and for technicians in physical therapy, and establishment of facilities for the treatment of victims of infantile paralysis and other diseases by physical therapy.

ILLINOIS

Chicago

The Bacon Lectures.—Carl R. Moore, Ph.D., professor and chairman of the department of zoology, University of Chicago, will deliver the Charles Sumner Lectures for 1945-1946 at the University of Illinois College of Medicine January 16-17 on "Studies in the Biology of Sex." Individual titles of the lectures will be "The Role of Sex Hormone in the Differentiation of the Reproductive System" and "Some Aspects of Development in the Uterus, and in Ovaries Subjected to Experimental Treatment."

Meeting of Institute of Medicine.—At the annual meeting of the board of governors of the Institute of Medicine of Chicago, December 12, the following officers were elected for the coming year: Drs. William F. Petersen, chairman of the board of governors; Ernest E. Irons, president; Percival Bailey, vice president; George H. Coleman, secretary; Grant H. Laing, treasurer. Dr. Italo F. Volini was elected a member of the board of governors for a term of five years. At the thirtieth annual meeting of the institute on December 4, in the Grand Ball Room of the Palmer House, Mrs. Harry Hart, long actively engaged in health and child welfare services in Chicago, Miss Mary E. Murphy, the director of the Elizabeth McCormick Memorial Fund, and Mr. Wilfred S. Reynolds, director of the Council of Social Agencies of Chicago, were received into citizen fellowship. Citizen fellowship is conferred by unanimous vote of the board of governors on persons who are interested in and who have materially contributed to the welfare of the community in the field of medicine, dentistry, nursing, public health, social service or instruction, and not more than three candidates can be elected in any one year.

KENTUCKY

Personal.—Layton B. Hardman, D.Sc., LaGrange, has resigned as superintendent of the Mallory Taylor Memorial Hospital.——Dr. Joseph P. Holt, assistant professor in the department of physiology, University of Louisville School of Medicine, has been appointed director of medical research, Standard Oil Company of New Jersey, with offices in New York.——Dr. George M. McClure Jr. has been appointed a member of the Danville Board of Education.

Physician Honored for Public Service.—Dr. Owen M. Carroll, New Castle, was recently presented with the medal for meritorious professional and public service sponsored and donated by Dr. E. Murphy Howard, Harlan, past president of the Kentucky State Medical Association, in recognition of his many services to organized medicine and to his people for more than a half century. Dr. Carroll has served for thirty-seven years as secretary of the Henry County Medical Society and for thirty-eight years as health officer of the county.

Changes in Health Officers.—Dr. George M. Wells, Bowling Green, has returned to the directorship of the Warren and Simpson County health departments, succeeding Dr. Paul Q. Peterson, who has been granted a scholarship in public health at the University of Michigan. Dr. Raymond E. Wehr, Newport, has been named health officer of Campbell County. He has been acting health officer since last September, when he filled the vacancy that occurred with the death of Dr. Clayton W. Shaw, Alexandria. Dr. Frank K. Sewell has been named health officer for the Knox, Whitley and Laurel county health district, succeeding Dr. Richard B. Fulks, Barbourville, who has been granted a fellowship to pursue a course in public health. Dr. Charles D. Cawood, Lexington, has resigned as health officer of the Lexington-Fayette County Health Department. Dr. Wilber V. Bradshaw Jr., Stanford, is the new health officer of Shelby County, succeeding Dr. Bertha A. C. Wiseman.

MASSACHUSETTS

Obstetrical Meeting.—On December 12 the New England Obstetrical and Gynecological Society held its seventeenth annual meeting at the Harvard Club, Boston. In addition to clinics held at the Free Hospital for Women, Carney Hospital and the Boston City Hospital the program included:

Dr. Louis K. Diamond, Boston, The Recent Practical Advances in the Understanding of the Rh Factor.
Dr. Arthur T. Hertig, Boston, Hydatidiform Mole: Some Recent Pathologic and Clinical Observations on Two Hundred Cases.
Dr. Edward G. Waters, Jersey City, N. J., A Discussion of Disputed Indications and Technics for Cesarean Section.

MICHIGAN

Physician Members of Rehabilitation Advisory Committee.—According to a recent announcement, the four physician members of the sixteen member state advisory committee for vocational rehabilitation include:

Dr. Charles L. Hess, Bay City, reappointed, representing Michigan State Medical Society
Dr. Raymond Hussey, Detroit, representing Wayne University.
Dr. William DeKleine, Lansing, representing the state health department.
Dr. Carleton Dean, Lansing, representing the Michigan Crippled Children Commission.

Grant for Research.—The Smith, Kline and French Laboratories have made a grant of $2,500 a year for two years to Dr. Amedeo S. Marrazzi, professor and head of the department of pharmacology and therapeutics of Wayne University

College of Medicine, Detroit. The grant is for the further study, by electrical methods, of drugs acting on the autonomic and central nervous systems.

MINNESOTA

Gift for History in Public Health.—The Minnesota Historical Society has announced the receipt of a gift of $25,000 from the Mayo Properties Association, Rochester, for the writing and publication of a history of public health in Minnesota.

Grant for Medical Fellowships.—A gift of $25,000 was made to the University of Minnesota Medical School, Minneapolis, by the Ebin Foundation of Minneapolis to support five graduate medical fellowships of $1,000 a year each, to be awarded immediately to veterans of World War II.

The Bell Lecture.—Dr. Haven Emerson, New York, acting director of the Minnesota School of Public Health, Minneapolis, gave the twelfth annual Bell Lecture before the Hennepin County Medical Society, December 3. His subject was "What Public Health Expects of the Private Physician."

Carl Potthoff Joins Red Cross.—Dr. Carl J. Potthoff, associate professor of preventive medicine and public health, division of personal health and health education, University of Minnesota Medical School, Minneapolis, has resigned to become assistant medical director of the American Red Cross with headquarters in Washington, D. C., according to the *Bulletin of the Hennepin County Medical Society.*

Personal.—Dr. Lewis S. Jordan, Granite Falls, was elected president of the Minnesota Public Health Association recently to succeed Dr. Francis E. Harrington, Minneapolis.——Dr. Jay Arthur Myers, professor of preventive medicine and public health, division of public health administration and epidemiology, University of Minnesota Medical School, Minneapolis, has been elected editor-in-chief of the *Journal of the American College of Chest Physicians.*

Electron Microscope.—An electron microscope has recently been installed in Millard Hall at the University of Minnesota Medical School, Minneapolis. The following are among the investigations which will involve the use of the microscope: the intracellular identification of a virus-like agent responsible for the high percentage of mammary carcinoma in susceptible strains of mice, microscopic examination of bone, dentin and enamel, a study of the nature of virus inclusions in certain diseases such as vaccinia and herpes, and studies of the finer detail of bacteria with diameters of the order of 0.5 micron.

Proposed Heart Hospital.—The Variety Club of the Northwest has offered to sponsor the construction of a hospital on the medical campus of the University of Minnesota Medical School, Minneapolis, to be known as the Variety Heart Club of the Northwest. A movement has already started to provide for a $325,000 structure on the medical campus. Sponsored by the Variety Club of the Northwest, it will be financed by all northwestern residents who are interested in the advancement of public health. The Variety Club will pledge a minimum of $25,000 a year to the institution for the care of children from counties that do not have funds available for such care. The unit will comprise a hundred beds. A hundred bed hospital, completely equipped with the most modern of accommodations and equipment to treat patients with rheumatic disease, will also be a clinic available for doctors throughout the Northwest to study this disease. It will also be an outpatient clinic in which ambulatory patients from the entire Northwest can be examined and obtain diagnosis. The research facilities at the University of Minnesota will provide cooperation of all phases of medical science. In this heart hospital it will be possible to study not only rheumatic fever in children but also all phases of heart disease in adults.

NEW YORK

Graduate Lectures.—Dr. David J. Impastato, New York, will discuss "The Value of Shock Therapy in Psychiatry" before the Nassau County Medical Society in Rockville Center, January 29. Dr. John G. F. Hiss, Syracuse, will discuss "Rheumatic Fever—Rheumatic Heart Disease" before the Ontario County Medical Society January 8 in Canandaigua. The first lecture is sponsored by the state medical society and the second by the society in cooperation with the state department of health.

Human Death from Rabies.—On October 17 a 2½ year old girl died in Buffalo from rabies. She had received medical treatment within one hour of the time she had been bitten on September 22 while playing in the yard of her home in Concord. A moderately deep laceration on the right side of the nose medial to the lower eyelid was cauterized with fuming nitric acid and the wound closed with a single suture, according to *Health News.* A superficial "scratch" beneath this injury and wounds of the mouth which apparently were not lacerated or bleeding were not cauterized. Antirabies vaccine was not given. On October 13, twenty-one days after the bite, the child had onset of illness with fever and vomiting. The following day she was removed to a hospital in Buffalo. She died October 17. Tissue from the brain removed at necropsy showed the presence of typical Negri bodies.

Foundation and Hospital Set Up for Rheumatic Fever.—A hospital for the care and treatment of children and other minors suffering from rheumatic fever and rheumatic heart disease has been established in Syracuse as the nucleus of the recently incorporated Rheumatic Fever Foundation of Onondaga County. The new hospital, a composite medical center, home, school and church, on November 6 had 12 patients; its total capacity is 40. According to *Health News,* the foundation was incorporated October 26. Its objectives include:

> To establish and maintain a hospital and a dispensary for the treatment of children and minors suffering, or suspected to be suffering, from rheumatic fever and rheumatic heart disease and their complications, and a coordinated clinic for the follow-up care and study of discharged hospital patients.
>
> To establish and maintain for research purposes a laboratory for the study of the causes of rheumatic fever and rheumatic heart disease and their treatment
>
> To cooperate with other established agencies and institutions, both public and private, interested in the prevention, detection and treatment of rheumatic fever and its complications

The work of the foundation is being administered under the supervision of seven directors, two of whom are physicians: Dr. John G. F. Hiss, Dr. Brewster C. Doust and Messrs. Frederick K. Kilian, William A. Barry, Arthur G. Lyons, Carl A. Bubie and Richard F. Harrison.

New York City

Cancer Committee Names Executive Director to Expand Activities.—Mr. Savel Zimand has resigned as director of the bureau of health education of the city department of health to become executive director of the New York City Cancer Committee. In his new position Mr. Zimand will direct the committee's proposed program of expansion, which will include education of the public with regard to the prevention, early diagnosis and treatment of cancer, informing the public where such services can be secured and promoting the establishment of more adequate facilities.

Physician Chosen "Outstanding Citizen."—Dr. Thomas H. Curtin, chairman of the Bronx Inter-Faith Council, was honored November 28 at a meeting of the Bronx Rotary, Lions and Kiwanis clubs at the Concourse Plaza Hotel. Dr. Curtin had been selected by fourteen Bronx civic and professional organizations as the "outstanding citizen" of the Bronx in 1945. Dr. Curtin, who came to the Bronx in 1900 as coroner's physician and later helped to found the Bronx Eye and Ear Infirmary, received a plaque for his civic, philanthropic and professional activities. He also received a citation from the Inter-Faith Council.

OHIO

Changes in Health Officers.—Dr. Robert A. Evans, Columbus, resigned as temporary health officer of Franklin County December 1. He has held the position for three years. Dr. Homer L. Mitchell, health commissioner, has now returned from service in the army.

Dwight Palmer in Charge of New Department.—Dr. Dwight Palmer, associate professor of neurology and psychiatry, Ohio State University College of Medicine, Columbus, has been made professor and chairman of a newly created department of neurology and psychiatry, it was announced December 3. Dr. Palmer has been a member of the staff of the university since 1927.

Neuropsychiatric Institute Organized.—The Neuropsychiatric Institute of Cleveland was recently organized at 10528 Park Lane, Cleveland 6. The project was started by a number of psychiatrists who felt that adequate psychiatric care could be given in a teamwork arrangement that included psychologists and such laboratory facilities as electroencephalography. Likewise, the institute was set up to give ambulatory electrocoma (shock) treatment. Organized by the staff, the institute is self supporting. Seminars in neuropsychiatry have been established for physicians of the Veterans Administration in the region and for local practicing physicians. Dr. Joseph L. Fetterman is director and Dr. Maurice D. Friedman associate director.

OKLAHOMA

Executive Secretary Takes Over Postgraduate Work.—With the resignation of Mr. L. W. Kibler as field director of the postgraduate course conducted by the postgraduate committee of the Oklahoma State Medical Association, Mr. Dick Graham, formerly executive secretary, has assumed the duties, and the course will continue under his direction.

Wann Langston New Dean at Oklahoma.—Dr. Wann Langston, professor and chairman of the department of medicine and for more than thirty years affiliated with the University of Oklahoma School of Medicine, Oklahoma City, has been appointed acting dean of the school, filling the vacancy that occurred with the death of Dr. Tom Lowry, December 11. Dr. Langston graduated at the University of Oklahoma School of Medicine in 1916. He was medical superintendent of the University Hospital from 1923 to 1926, becoming on Jan. 1, 1927 superintendent, a position he held for about a year, when he went into private practice.

TEXAS

Chairman of Anatomy Named.—Donald Duncan, Ph.D., professor of anatomy at Louisiana State University School of Medicine, New Orleans, has been appointed professor and chairman of the department of anatomy at the University of Texas Medical Branch, Galveston, effective February 1.

GENERAL

New Secretary for Industrial Nurses.—Miss Elizabeth Andrews, R.N., has been named executive secretary of the American Association of Industrial Nurses, effective January 1, succeeding Mrs. Gladys L. Dundore, R.N., resigned.

Society News.—The fifth International Assembly of the International College of Surgeons will be held at Lima, Peru, March 25-27 in the Hospital Obrero under the general chairmanship of Dr. Francisco Graña. Those in the United States desiring to present papers should address Dr. Albert A. Berg, 10 East 73d Street, New York. General information may be obtained from Dr. Max Thorek, Secretary General of the College, 850 Irving Park Road, Chicago 13.——The American Gastroenterological Association will hold its annual meeting at the Hotel Claridge, Atlantic City, May 24-25. Dr. Jacob Arnold Bargen, Rochester, Minn., is secretary.——The seventeenth annual convention of the Aero Medical Association of the United States will be held at the Edgewater Beach Hotel, Chicago, April 7-9.——The American College of Physicians will hold its annual meeting in Philadelphia May 13-17 with headquarters at the Philadelphia Municipal Auditorium.

Seminar for Specialists in Allergy.—The American Academy of Allergy announces its seminar for specialists in allergy on January 7-11 under the joint auspices of the American Academy of Allergy and the New York Postgraduate Medical School. Among the speakers will be:

Dr. Albert Vander Veer, New York, Hay Fever.
Dr. Sanford B. Hooker, Boston, Chemistry of Antibody and Antigen.
Dr. Russell C. Grove, New York, Sinusitis in the Diagnosis and Treatment of Allergic Diseases.
Dr. Paul Klemperer, New York, Pathologic-Anatomic Aspects of Allergy.
Dr. Samuel M. Feinberg, Chicago, The Importance of Molds in Allergic Conditions.
Dr. McKeen Cattell, New York, Pharmacology of Drugs Used in Allergic Conditions.
Dr. Horace S. Baldwin, New York, The Importance of Differential Diagnosis in the Practice of Allergy.
Dr. Frances Pascher, Brooklyn, The Treatment of Allergic Dermatosis.
Dr. Joseph Harkavy, New York, Vascular Allergy.
Dr. Robert A. Cooke, New York, The Antibodies Concerned in Skin Sensitive Allergies.

Lasker Award Goes to Psychiatrists.—The Lasker Award was conferred jointly November 1 on Dr. John R. Rees, consultant in psychiatry to the directorate of psychiatry of the British army, and Major Gen. George Brock Chisholm, deputy minister of national health, federal department of national health and welfare of Canada. The presentation was made by Gen. Omar N. Bradley, administrator of veterans' affairs, at the annual luncheon meeting of the National Committee for Mental Hygiene. The Lasker Award of $1,000, established in 1944 by the Albert and Mary Lasker Foundation, is given annually through the committee for meritorious service and significant contributions to promoting mental health and increasing public understanding of mental hygiene. Each year the award is made for distinguished service in some special aspect of the field of mental hygiene which is of current significance, the honor going in 1945 for service in the field of rehabilitation. The recipient of the award is chosen by members of a jury anonymous to one another as well as the general public, selected annually for competence to judge accomplishment in a particular field. The National Committee for Mental Hygiene reelected its officers at the recent meeting.

International Association of Allergists.—Dr. Fred W. Wittich, secretary-treasurer, American College of Allergists, announces that, after planning and study by representative officers of various existing national allergy societies in different countries, the International Association of Allergists has been incorporated. Pan American and Pan European sections will be affiliations of the association. It is planned to hold the first international congress in Paris in 1948, when universal standards of terminology and classification of allergies will be adopted. Preliminary to this program it is proposed that the same subjects will be the theme of the first Pan American Congress to be held under the auspices of the American College of Allergists at its next annual meeting, tentatively set for Oakland, Calif., June 28-30. The members of the first executive committee, which will compose the temporary group of officers until the election in 1948, are Drs. Karl Figley, Toledo, Ohio; Jonathan Forman, Columbus, Ohio; Guido Ruiz-Moreno, Buenos Aires, Argentina; Abelardo Saenz, Montevideo, Uruguay; Pasteur Vallery-Radot, Paris, France, and Dr. Wittich, chairman, Minneapolis. Executive offices and headquarters of the new association have been set up adjoining the offices of the college. The address is 401 La Salle Medical Building, Minneapolis 2.

Government Services

Consultant Named for Veterans Administration

A group of thirteen consultants has been appointed to the staff of the Veterans Administration Hospital, Hines, Ill. The new appointees are drawn mainly from the faculties of the medical schools at Northwestern University and the University of Illinois as well as from officer personnel being separated from the medical corps of the army. The appointment of these consultants are a phase of the program of Major Gen. Paul R. Hawley, acting surgeon general, Veterans Administration, and Dr. Paul B. Magnuson, Chicago, newly appointed director of postgraduate instruction and research. The names of the physicians are Lindon Seed, Oak Park, Ill., Harold C. Lueth and Richard H. Young, both of Evanston, Ill., Frederick C. Hoebel, River Forest, Ill., and John Martin, Edwin M. Miller, John H. Mohardt, Frederick W. Fitz, Earle I. Greene, Robert M. Jones, Charles B. Puestow, Mitchell A. Spellberg and Everett L. Strohl, all of Chicago.

New Medical Classification for the Library of Congress and the Army Medical Library

Based on studies for new alternative schedules for medicine, class R, and for the preclinical sciences in class Q for the Library of Congress System, a new classification will soon be put into effect. The Army Medical Library plans an early classification of its collection under the new schedule. Because its is expected that alterations, additions and subtractions will be found necessary, it is judged wise not to make the provisional first draft of the classification available for general distribution. The process of classifying the Army Medical Library collection should result in establishing the system in permanent form. It will then be possible to publish it as an integral part of the Library of Congress classification schedules. It should be noted that the notation for these new schedules has been planned so that it will not conflict with the use of those in the original Library of Congress scheme for class Q and class R. The material from these classes has been assigned to heretofore unused portions of the alphabet, the new Q divisions occupying QS to QZ, while medicine proper (the former R sections) utilizes the wholly vacant letter W. This will make it possible for libraries already using the present Library of Congress classification for medicine and related sciences to continue to do so or, if they prefer, to apply the new system, leaving their previous collections as they are. The Library of Congress will announce its policy with respect to use of the new schedules before they are published. Keyes D. Metcalf, Litt.D., is chairman of the committee on a new medical classification for the Library of Congress and the Army Medical Library. Miss Mary L. Marshall is responsible for the actual work on the new classification under a committee representing the Harvard College Library, the Library of Congress and the Army Medical Library survey committee.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 1, 1945.

Rehabilitation of Patients with Head Injuries

The immense experience with head injuries during the war has advanced knowledge of the subject. Much work has been done at the Military Hospital for Head Injuries at St. Hugh's, Oxford. During the past eighteen months the Nuffield Provinsional Hospitals Trust, the Ministry of Pensions and the Radcliffe Infirmary, Oxford, have been considering some plan for dealing with the after-treatment of head injuries. As a result of modern neurosurgery and chemotherapy, men with brain wounds who formerly would have died have survived. Many have regained speech, sight and mental faculties; paralyzed limbs have recovered. These results have been achieved through courage and perseverance by the patients, a favorable environment and the guidance of a skilled team of workers. But recovery is often incomplete, and frequently severe permanent disability remains. Inability to cope with ordinary conditions of civilian life and the fear of being a drag on their families cause anxiety, disappointment and frustration.

If these men are to make their contribution to the community within the limitations imposed by their disabilities, it is necessary to assess their physical, mental and vocational capacity for work while they are in the hospital. Later they must be given facilities for simple training in various forms of work more advanced and more satisfying to the desire to be useful than occupational therapy alone can afford. Finally for the gravely disabled a permanent center must be provided which will give medical care with apropriate forms of useful work. These men can live with their families around the center whose protection they need.

The following steps are now being taken to deal with the problem: The Ministry of Pensions recognizes that head injury patients comprise a group for which special provision must be made and that further research on the best methods of rehabilitation is necessary. For this research the Radcliffe Infirmary, Oxford, with the aid of a donation of $100,000 from the Nuffield Provincial Hospitals Trust, has appointed Dr. W. Ritchie Russell. Before the war he was lecturer in neurology at Edinburgh University and during the war worked at the Military Hospital for Head Injuries, Oxford. He will work in close collaboration with the departments of Oxford University, already engaged in the study of lesions of the nervous system. He will give specialized assistance and advice to the Ministry of Pensions. By these means the latest methods of treatment will be made available to pensioners.

The Health Conditions of European Countries

An encouraging picture of health in Europe has been drawn by Dr. George Stuart, head of the Medical Information Branch of the United Nations Relief and Rehabilitation Administration. Although present conditions favor epidemic diseases, the situation is not nearly so dangerous as after the last war. Smallpox is negligible; typhus has been almost eliminated from Europe west of the Elbe-Adriatic line. In several western countries and especially in Germany there is a high incidence of diphtheria, typhoid and dysentery, largely the result of malnutrition in overcrowded and ruined areas. Typhoid is the most dangerous disease in Europe, reaching in September thirty times its normal incidence in Germany. Tuberculosis has also increased, especially in Italy, Yugoslavia and Greece, where its frequency is ten times as great as in Britain. Twenty years of venereal disease control has been nullified during the war, for there is a three to nine fold increase of syphilis in most European countries, and up to a twenty fold increase in Germany. Malaria is of epidemic proportions only in Greece, but it is hoped that modern methods of control can almost eradicate it there in two or three seasons.

UNRRA is doing great work to combat these diseases. Medical supplies are now flowing into all the countries with which the organization is concerned, although transport difficulties often delay distribution. From Britain alone 60,000 hospital beds, with all the necessary equipment, have been sent. By the end of September UNRRA had shipped over 11,000 tons of medical supplies into Europe.

ITALY

(From Our Regular Correspondent)

Naples, Nov. 20, 1945.

Health and Nutrition

The standard of health in Italy is gradually improving. Health conditions were appalling during the war, owing to the scarcity of food and to the threatening spread of epidemics in the period immediately following the armistice.

In 1939 Hitler promised the peoples of the Axis a "blitz victory" and Mussolini did not then enforce food rations. In 1941, however, this was suddenly done with a vengeance, as soon as the probability of a long conflict was apparent. Only 150 Gm. of poor bread and a general daily ration that supplied each person with about 1,200 calories a day was provided. As a result all Italians began to lose weight rapidly, notwithstanding the supplements from black market sources, which were very modest, since the Nazis exploited Italy even in food. At first adults from 40 to 50 years of age began to lose weight from 12 to 25 per cent and in some cases up to 30 Kg., then young persons, children and finally the pathologically obese. The latter resisted weight loss during the years 1940 and 1941, but in 1943 not a single case of obesity was encountered from the Alps to Sicily. This indicates that insufficient food can weaken the endocrine system. They all lost weight according to a typical pattern, notwithstanding the various "types" and constitutions. The restrictions of proteins and fats caused a water imbalance, which resulted in abundant urine; this in turn led one to suspect a form of diabetes insipidus, never confirmed, however. A new restriction of carbohydrates (macaroni, bread and rice) caused those who were losing weight to become weaker and weaker. Because of the altered carbohydrate function, loss of immunity to the staphylococcic and the streptococcic infections occurred. An outbreak of abscesses and boils followed.

Malnutrition then influenced latent constitutional ailments. The most unusual forms of nonpulmonary tuberculosis appeared in adults. Thirty year old subjects were affected by meningitis, sinovitis and primary pleurisy. At the same time life in the air raid shelters, where many actually dwelt on account of the nerve racking, continuous bombardments, gave rise to mass contagion with scabies. The general thinning down took on such terrible forms that Mussolini gave orders to the editors of the chief dailies not to say a word about it, so as to avoid alarming the population. We managed, however, to get round this order, by a strange coincidence. The London *Lancet* had once published a flattering editorial on a book of mine on preventive medicine, which had been published in Bologna. Mussolini read this book. He liked it and addressed a personal letter to me declaring that the book was absolutely in keeping with his own ideas. As a result I was able to carry out a program and publish articles on preventive medicine in wartime in important political journals, exhorting the readers to get calories from nonrationed and unusual food, such as horse flesh, to add to the rations vegetables, which increased immunity because of the vitamins they contained, and to eat generously of fruit rich in mineral salts. Readers were warned against fighting weight loss by taking substances such as cod liver oil which were apt to become "diet toxic" on account of the scarcity of certain vitamin groups to counterbalance their action. In spite of the malnutrition, death by starvation was not registered in Italy as in other belligerent European countries owing to the fact that there was a natural source of vitamin B_1 in the abundant fresh vegetables.

BUENOS AIRES

(From Our Regular Correspondent)

Nov. 15, 1945.

Intrasplenic and Intracanalicular Administration of Penicillin

Dr. Mariano R. Castex and Dr. Eduardo L. Capdehourat of Buenos Aires recently reported on the intrasplenic and intracanalicular administration of penicillin. The intrasplenic route was used in a case of abscess of the spleen complicating convalescence from bilateral pulmonary abscess. The intracanalicular route was resorted to after operation in 2 cases of suppurative calculous cholecystitis. Intrasplenic injection was performed with a needle 6 or 8 cm. long, with a caliber of 0.10 or 0.12 mm. after local anesthesia of the skin. Penicillin in isotonic solution of sodium chloride, isotonic dextrose solution, the patient's whole blood, plasma, blood serum or sulfonamide solution (sulfadiazine, sodium sulfamerazine, and glucothiazole) may be used for intrasplenic injections. Any one of the solutions is well tolerated by the patient. The solution is prepared by dissolving 100,000 units of penicillin in 10 or 20 cc. of isotonic solution of sodium chloride or isotonic dextrose solution. When whole blood, plasma or blood serum is used, the penicillin is placed in 5 cc. of either isotonic solution of sodium chloride or isotonic dextrose solution, and whole blood, plasma or blood serum is added to the solution to a total quantity of 10 or 20 cc. Whole blood is withdrawn directly into the syringe which contains the penicillin solution. This precaution is necessary to prevent coagulation. The simultaneous administration of soluble sulfonamide preparations and penicillin is of value. The physical, chemical and biologic properties of the two drugs are reciprocally increased and bacterial resistance to either sulfonamide or penicillin is simultaneously controlled. The daily dose varies from 50,000 to 300,000 Oxford units. Each injection varies from 10 to 20 cc. and is given slowly. The solution is warmed by wrapping the syringe in cotton soaked in boiling water. The total dose of penicillin depends on the clinical condition. When the syringe strikes an abscess the pus or purulent material is aspirated before the injection.

Penicillin through the biliary ducts can be administered either by continuous drip or by instillation through the drainage tube after surgical opening of the gallbladder in suppurative calculous cholecystitis. The continuous drip is administered through a very fine sound which is introduced through the drainage tube, leaving a space between sound and tube for elimination of suppuration. Instillation is made directly through the drainage tube, which is closed after instillation with a clamp of the Mohr or Kocher type and kept closed for two hours after each instillation. During local administration of penicillin the patient is maintained in the Trendelenburg position, which facilitates passage of the drug deep into the liver and into the intrahepatic biliary ducts by gravitation. Penicillin passes through the common bile duct into the duodenum and the portal system and returns to the liver. Within the liver penicillin passes through the excretory canalicular system and reaches the fine lobes within the liver and the constituent cells of Remak's column through the portal system. By this procedure the hepatocystic system is in constant contact with penicillin. Bile has no influence on the effect of penicillin. A daily dose of 100,000 units is sufficient. The total dose depends on the clinical condition. Penicillin for intracanalicular use is dissolved in isotonic solution of sodium chloride, dextrose solution, plasma or blood serum. Soluble sulfonamide preparations are contraindicated because they are toxic for the liver. The quantity of solvent for the continuous drip is 100 cc. and for instillation 20 or 30 cc. Instillation is performed slowly to prevent distention of the biliary ducts. It is well tolerated, without pain and local irritation. It is indicated after operation in cases of biliary infection, suppurative angiocholitis or empyema of the gallbladder. Penicillin by the intracanalicular route is also indicated, as a routine after operation, on the excretory system of the liver with drainage in order to prevent local infection. Peptones and the products of cellular disintegration from the effect of the pyogenic course have no influence on the effect of the drug.

Studies on Old Age

A committee for studies on old age was recently appointed. Dr. Bernardo A. Houssay is the president. Drs. José González Gale, E. Eduardo Krapf, Francisco Romero and Pablo Osvaldo Wolff are members. The aim of the committee is to study the origin and general significance of the phenomena which cause old age and to extend this study to the various fields of gerontology, the organic life and inorganic nature. The somatic, mental, physical, chemical, anthropologic and philosophic aspects of the problem will be discussed. A society, to work in connection with the committee, has been organized. It will include physicians and others in the various sciences related to medicine.

Personal Items

Dr. Jose Arce, dean of the Faculty of Medicine of the University of Buenos Aires, recently resigned the position of dean of the faculty and of regular professor of thoracic surgery. Dr. Gonzalo Bosch, teacher of psychiatrics of the faculty, was appointed new dean of the faculty.

Dr. Pasteur Vallery Radot of France was the president of the French Cultural Mission in Argentina, after which he returned home. Recently the Superior Council of the National University of Buenos Aires gave him the diploma of "Doctor Honoris Causa" for his contributions to medicine.

Dr. Bruno Guenther, professor of physiopathology of the School of Medicine of the University of Conception, Chile, was recently appointed head of the Instituto de Fisiologia of the same faculty.

Marriages

George Washington Fishburn to Miss Nellie Mae Embree McIlwaine, both of Richmond, Va., in Petersburg, October 27.

Charles E. Sherwoood II, New York, to Dr. Sarah E. Prindle of New Haven, Conn., in Branford, Conn., August 20.

Walter Boudinot Rahmanop, Manchester, N. H., to Mrs. Beatrice Rowe Allen in Bedford, September 26.

Frederick Conrad Gevalt Jr., Boston, to Miss Sally Willi Young of Scarsdale, N. Y., November 10.

Robert James Ruark, Raleigh, N. C., to Mrs. Cleste Edgeton Guess in Chapel Hill, September 30.

Hiram Robertson Elliott Jr., Fairfield, Ala., to Mi Naomi Favor of Selma, September 29.

Archibald E. Senesac to Miss Louise Frances Salles, bot of New Bedford, Mass., August 25.

Mark P. Fecher, Dayton, Ohio, to Miss Lorraine Marguerit Sebek of St. Louis, September 29.

David L. Pressly, Statesville, N. C., to Miss Anita Arneso in San Antonio, Texas, October 6.

Brian T. Shorney, Detroit, to Dr. Magda E. Puppendah of St. Louis, November 3.

Rodger Browning Smith to Miss Mary Maxwell, both o Madison, Wis., recently.

Delmar O. Shields, Detroit, to Dr. Wilma R. Farrington of St. Louis, October 6.

Deaths

Isaac Donaldson Rawlings, Chicago; Northwestern University Medical School, Chicago, 1893; born in Carrollton, Ill., April 29, 1869; member of the American Medical Association; emeritus member of the Illinois State Medical Society; at one time a member of the faculty of his alma mater, where he served as assistant demonstrator in anatomy, assistant demonstrator in bacteriology and clinical medicine, instructor in clinical medicine and associate in medicine; formerly associated with the U. S. Public Health Service; joined the city health department in 1899 as a medical inspector and later appointed assistant chief medical inspector and chief of the bureau of communicable diseases; director, state department of health from 1921 to 1929; author of two volumes of "Rise and Fall of Disease in Illinois"; died in Newton, Kan., October 21, aged 76, of a fractured right femur and humerus received in a fall.

Rowland Godfrey Freeman ⊕ New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1886; professor emeritus of pediatrics at the New York University College of Medicine; member of the American Pediatric Society, New York Academy of Medicine and the Association of American Physicians; secretary from its formation in 1901 of the milk commission of the Medical Society of the County of New York until 1917 when he became chairman; consultant in pediatrics at the Sea View Hospital, Staten Island, Roosevelt Hospital, New York Foundling Hospital and the Willard Parker Hospital; author of "Elements in Pediatrics"; died November 14, aged 86, of pneumonia.

Rowland Foreman Webb ⊕ Grand Rapids, Mich.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1897; fellow of the American College of Surgeons; member of the American Association of Railroad Surgeons; member of the active senior surgical staff of the Butterworth Hospital, where he had been chief of staff three times, chief of surgery twice and where he had been intern and resident in surgery; on the courtesy staffs of the Blodgett Memorial Hospital and St. Mary's Hospital; surgeon to the Pere Marquette Railroad, New York Central Railroad and Michigan Central Railroad; died at the University Hospital, Ann Arbor, September 23, aged 70, of pneumonia.

George Eugene Dodge, San Marino, Calif.; University of Virginia Department of Medicine, Charlottesville, 1896; surgeon during Boer War on the hospital ship *Maine;* on the surgical staff of the New York Hospital in 1899; fellow of the American College of Surgeons; died September 19, aged 72, of coronary thrombosis.

Robert Hewitt Feldt ⊕ Milwaukee; Northwestern University Medical School; Chicago, 1934; assistant medical director of the Northwestern Mutual Life Insurance Company; on the staff of the Milwaukee Children's Hospital and on the associate staff of the Columbia Hospital, where he died October 8, aged 36, of rheumatic heart disease.

Amos Thomson Harrington, West Hartford, Conn.; Harvard Medical School, Boston, 1910; member of the American Medical Association; also a clergyman; physician to the Old Peoples' Home and associate physician at the Hartford Hospital, where he died October 1, aged 75, of cerebral thrombosis and hypertensive cardiovascular disease.

Arshavir Ignatius, Maywood, Ill.; University of Illinois College of Medicine, Chicago, 1916; began active duty as a captain in the medical corps, Army of the United States, on Aug. 15, 1942; assigned to Camp Gordon Johnston, Fla.; promoted to major; service terminated in 1944 because of physical disqualification; died September 12, aged 58.

Morrell Mallory Jones, Pontiac, Mich.; Detroit College of Medicine and Surgery, 1915; member of the American Medical Association; served in France during World War I; on the staffs of the Pontiac General and St. Joseph Mercy hospitals; died in the Henry Ford Hospital, Detroit, September 28, aged 54, of coronary occlusion.

Milton Emanuel Leckrone, Rochester, Ind.; Indiana University School of Medicine, Indianapolis, 1925; fellow of the American College of Surgeons; member of the American Medical Association; served an internship and as assistant superintendent of the City Hospital in Indianapolis; medical director and owner of the Woodlawn Hospital; died October 1, aged 45, of coronary embolism.

James Michael MacEvitt, Babylon, N. Y.; Long Island College Hospital, Brooklyn, 1891; member of the American Medical Association; past president of the medical board of St. Mary's Hospital and of the Holy Family Hospital, Brooklyn; died in the Southside Hospital, Bay Shore, September 3, aged 82, of generalized arteriosclerosis.

John Herbert Mudgett, Philadelphia; Dartmouth Medical School, Hanover, N. H., 1896; member of the American Medical Association; died in the Lankenau Hospital September 24, aged 73, of myocardial failure.

George Davenport Parkhurst ⊕ Fair Haven, Vt.; Bellevue Hospital Medical College, New York, 1897; for many years trustee of the Fair Haven Carnegie Library; died in the Mary McClellan Hospital, Cambridge, N. Y., September 4, aged 70, of carcinoma of the stomach.

William Courthope Poussette, Los Angeles; Trinity Medical College, Toronto, Ont., Canada, 1897; died in the Presbyterian Hospital-Olmsted Memorial September 3, aged 76, of bilateral lobar pneumonia.

Benjamin Pushkin ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1914; assistant professor of neurology at his alma mater; specialist certified by the American Board of Psychiatry and Neurology, Inc.; on the staff of the Sinai Hospital; died September 8, aged 56, of coronary thrombosis and cardiovascular disease.

William Joseph Quigley, Chicago; Rush Medical College, Chicago, 1913; member of the American Medical Association; formerly assistant professor of medicine at the University of Illinois College of Medicine and clinical professor of medicine at the Loyola University School of Medicine; on the staffs of the Cook County Hospital and St. Anne's Hospital; died at his home in Oak Park, Ill., October 1, aged 59, of cerebral hemorrhage and coronary thrombosis.

Edward Wilson Rawls, Portsmouth, Va.; Medical College of Virginia, Richmond, 1909; member of the American Medical Association; for many years on the staff of the King's Daughters' Hospital; died September 6, aged 61, of coronary thrombosis.

John Wesley Calhoun Stephenson, St. Petersburg, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1912; fellow of the American College of Surgeons; served as a colonel on the governor's staff of Kentucky and during World War I; died in the Mound Park Hospital September 7, aged 60, of coronary occlusion.

Charles Kimball Stewart, Moorcroft, Wyo.; University of Michigan Homeopathic Medical School, Ann Arbor, 1893; served as local health officer; formerly on the staff of the Sheridan County Memorial Hospital in Sheridan; died September 12, aged 76, of cerebral hemorrhage.

Eugene Adelbert Sullivan, Amboy, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; served as health officer; president of the First National Bank; on the staff of the Amboy Public Hospital, where he died September 15, aged 68, of cerebral thrombosis and hypertension.

Frederick William Walker, Los Angeles; Rush Medical College, Chicago, 1890; died September 6, aged 86, of senility.

Frederick William Walz, Cleveland; Homeopathic Hospital College, Cleveland, 1878; served as a member of the board of education, county coroner and councilman; died in the Fairview Hospital September 20, aged 86, of arteriosclerosis.

Letitia A. Westgate, Mendota, Ill.; Northwestern University Woman's Medical School, Chicago, 1892; died September 30, aged 78, of uremia.

Bine Whitlatch ⊕ Milan, Ind.; Kentucky University Medical Department, Louisville, 1905; served as director of the State Bank and member of the school board; died September 9, aged 70, of coronary occlusion.

Margaret Barclay Wilson, Washington, D. C.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1893; formerly professor of physiology and hygiene at the Hunter College in New York; achieved a collection of about four thousand textbooks and a similar number of pamphlets in twenty different languages on foods, cookery, gastronomy and allied subjects, which she presented to the New York Academy of Medicine; died in October, aged 82, of acute congestive heart failure.

Olen L. Wise, Forest, La.; Memphis (Tenn.) Hospital Medical College, 1910; coroner of West Carroll parish; died in a sanitarium in Monroe September 7, aged 62.

Joseph Barnett Workman ⊕ Ware Shoals, S. C.; Medical College of the State of South Carolina, Charleston, 1907; died in the Greenwood (S. C.) Hospital September 20, aged 67, of injuries received in an automobile accident.

DIED WHILE IN MILITARY SERVICE

George Hudson Ebbett, Houlton, Maine; McGill University Faculty of Medicine, Montreal, Que., Canada, 1936; born in Hodgdon, Maine, July 21, 1909; member of the American Medical Association; interned at the Monmouth Memorial Hospital in Long Branch, N. J.; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on Dec. 2, 1939; began active duty in the medical corps, Army of the United States, on Feb. 10, 1941; the first assignment was at Fort Benning, Ga., which was followed by duties in various training centers in the United States; promoted to captain on June 1, 1942; in August 1943 went overseas and was recalled to the United States in 1944, when he was assigned to the orthopedic service in the hospital at Westover Field, Mass., where he died July 27, aged 36, of second degree burns received when his home caught fire.

Donald Renwick Ferguson, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1916; born in Swarthmore, Pa., Nov. 21, 1889; member of the American Medical Association; fellow of the American College of Physicians; specialist certified by the American Board of Internal Medicine; professor of clinical medicine at his alma mater; served as president of the Philadelphia County Homeopathic Medical Society; on the staffs of the Children's Hospital and St. Luke's Hospital; consulting cardiologist at the Women's Homeopathic Hospital; visiting physician at the Hahnemann Hospital; served overseas during World War I; began active duty as a major in the medical corps, Army of the United States, on Sept. 25, 1942; died in Station Hospital, Camp Shanks, N. Y., August 27, aged 55, of cerebral hemorrhage.

Walter Robinson Finton, Jackson, Mich.; University of Michigan Medical School, Ann Arbor, 1936; born in Jackson, Mich., July 9, 1911; member of the American Medical Association; interned at the Hurley Hospital in Flint; began active duty as a first lieutenant in the medical corps, Army of the United States, on Sept. 22, 1942; trained at Miami, Fla.; stationed at the Army Air Base at Walla Walla, Wash., for four months; on June 1, 1943, assigned to the Second Air Force and sailed for European duty; served in England, Ireland, France and Germany; promoted to captain; died in the Sixty-Eighth General Hospital in France July 15, aged 34, of acute infectious hepatitis.

Glenn Ellwood Harrison, Mason City, Iowa; State University of Iowa College of Medicine, Iowa City, 1928; born in Prescott, Iowa, Feb. 24, 1903; member of the American Medical Association and the American Academy of Pediatrics; on the staff of the Park Hospital; interned at the University Hospitals in Iowa City, where he served a residency; served a residency at the Duke Hospital in Durham, N. C.; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on Jan. 6, 1930; began active duty on Dec. 12, 1940 as a captain, assigned as chief of the contagious disease service, Base Hospital, Camp Joseph T. Robinson, Ark.; became the surgeon of the eighth port of embarkation at Boston; commander of the Thirty-Fifth Hospital unit at Corsica, which was awarded the meritorious service unit plaque; promoted to major, lieutenant colonel and colonel; died August 31, aged 42, of coronary heart disease.

Lewis McCurdy Jones, Opelika, Ala.; Emory University School of Medicine, Atlanta, 1937; interned at the Hillman Hospital in Birmingham, where he served a residency in obstetrics and gynecology; began active duty as a first lieutenant in the medical corps, Army of the United States, on Dec. 15, 1940; promoted to captain on Oct. 29, 1941; served overseas with a general hospital in England, 1943-1944; killed June 17, aged 32, in an automobile accident near Camp Rucker, Ala.

Martin Joseph Keane ⊕ Riverdale, Md.; Georgetown University School of Medicine, Washington, D. C., 1930; interned at the Georgetown University Hospital in Washington, D. C.; formerly instructor in bacteriology and in clinical surgery at his alma mater; commissioned a captain in the medical corps, Army of the United States, on Nov. 20, 1944; died in the Walter Reed General Hospital, Washington, D. C., September 20, aged 40, of congestive heart failure.

Howard Dillon Maxwell ⊕ Alliance, Ohio; Ohio State University College of Medicine, Columbus, 1930; interned at the Youngstown Hospital in Youngstown; began active duty as a captain in the medical corps, Army of the United States, on September 1942; promoted to major, Nov. 7, 1944; served overseas in New Guinea and in the Philippines; died at the Fletcher General Hospital in Cambridge, Ohio, August 12, aged 42, of pneumonia.

Arch Lavere Oldaker, Lakewood, Ohio; Western Reserve University School of Medicine, Cleveland, 1929; member of the American Medical Association; interned at St. Vincent's Charity Hospital in Cleveland; formerly resident physician at the Lakewood City Hospital; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on June 13, 1929; promoted to captain, June 23, 1939; began active duty in 1941; died in the Philippine Islands May 8, 1942, aged 41, of malaria.

John Josiah Redfield, North Platte, Neb.; University of Nebraska College of Medicine, Omaha, 1942; interned at the Eastern Maine General Hospital in Bangor, Maine; began active duty as a first lieutenant in the medical corps, Army of the United States, on Aug. 10, 1943; died in Columbus, Ga., August 22, aged 28, of coronary sclerosis.

Robert Lewis Screen, Martinsville, Va.; Meharry Medical College, Nashville, Tenn., 1942; interned at the City Hospital in Winston-Salem, N. C.; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 7, 1944; sailed for overseas duty with the 92d division in October 1944; killed in Italy April 8, aged 27.

James McGeough Sullivan, San Francisco; St. Louis University School of Medicine, 1923; diplomate of the National Board of Medical Examiners; member of the American Medical Association; lieutenant colonel, medical corps, Army of the United States; died in Honshu Island, Camp Fukuoka, Japan, Jan. 31, 1945, aged 52, of acute colitis.

Walter Low Tatum, Salisbury, N. C.; Jefferson Medical College of Philadelphia, 1922; born in Salisbury, N. C., June 5, 1899; interned in St. Joseph's Hospital in Philadelphia; past president of the Rowan-Davie Counties Medical Society; served as county coroner for many years; formerly chief of staff of the Rowan Memorial Hospital; served as president of the Fourth Corps Area council of the National Reserve Officers Association of the United States; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on April 28, 1925; became a captain on July 8, 1929, a major on Aug. 1, 1934 and a lieutenant colonel on Oct. 17, 1940; began active duty on Feb. 28, 1941; died in Frankfort, Germany, August 1, aged 46, of arteriosclerotic arterial hypertension.

Wiley Kellett Thorne, Mountain Grove, Mo.; Washington University School of Medicine, St. Louis, 1943; interned at the St. Louis City Hospital; commissioned a first lieutenant Dec. 12, 1943 in the medical corps, Army of the United States; died in Saipan June 20, aged 26, when a carbine was accidentally discharged.

Thomas Edgar Wyatt Jr., Marshfield, Wis.; Vanderbilt University School of Medicine, Nashville, Tenn., 1935; born in Elkton, Ky., on May 21, 1910; member of the American Medical Association; interned at the New York Hospital in New York; served a residency in surgery at the Vanderbilt University Hospital in Nashville, Tenn.; an associate surgeon with the Marshfield Clinic; fellow of the American College of Surgeons; commissioned a first lieutenant in the medical reserve corps of the U. S. Army in 1935 and began active duty as a captain on Oct. 25, 1940; promoted to major; left for overseas service early in January 1942; while on foreign service attended the British army specialist schools of neurosurgery in Oxford, maxillofacial surgery in East Grinstead and chest surgery in London; an operating surgeon with the first task force to land in northern Ireland in 1942 and later with advance medical units in Normandy, France, Belgium, the Netherlands and Germany, with the First and Ninth armies, 41st Evacuation Hospital; among the decorations awarded him were the Bronze Star and citations from the king of England and the President of the United states; died on train near Valley Forge, Pa., August 12, aged 35, of edema of lungs with dilatation of the heart.

Correspondence

RESTLESS LEGS

To the Editor:—The editorial "Restless Legs" in the issue of November 24 was of great interest because I too have had this condition. My observations, both of myself and of my patients, convince me that this symptom is associated with either chronic nonspecific prostatitis or testosterone deficiency or a combination of the two. This symptom is probably more common than one might suspect, but for some unknown reason patients with prostatitis seldom volunteer the information that they have this complaint. About half of my prostatitis patients will admit having "restless legs" if carefully questioned, and treatment directed solely at the prostate gives relief.

A general practitioner seldom sees enough of one type of patient to be able to draw any accurate conclusions. However, this observation may be of interest to those who can study a sufficient number of these cases and can make statistical studies from which valid conclusions can be drawn.

J. A. WINTER, M.D., St. Joseph, Mich.

To the Editor:—Meralgia paresthetica, Roth's or Bernhardt's disease, was described many years ago (Goldstein, Hyman I.: *Am. J. M. Sc.* **162**:720 [Nov.] 1921). While typically this syndrome affects the thighs laterally and anteriorly, it appears to resemble in some respects the paresthesias of "restless legs" (Wittmaack-Ekbom syndrome). The editorial in THE JOURNAL, November 24, discusses crurum paraesthetica and the painful crawling cold sensations, but no mention is made of this similarity to Roth's or Bernhardt's disease, and perhaps mention should be made of Solomon Solis-Cohen's "vasomotor ataxia" (*Am. J. M. Sc.* **107**:135, 1894), Osler's "crural paresthetica" (Osler, William: On Certain Unusual Forms of Paresthetica Meralgia, *J. Nerv. & Ment. Dis.* **24**:131, 137, 1897), Erb-Hunt-Kirstein's dysbasia angiosclerotica and Moebius's akinesia algera. Perhaps Ekbom (*Acta med. Scandinav.*, supplement 158, 1945) has only revived previously described syndromes by Wittmaack (1861), Roth (1895) and Bernhardt (1895), as so frequently happens in medical literature.

HYMAN I. GOLDSTEIN, M.D., Camden, N. J.

SUBACUTE BACTERIAL ENDOCARDITIS

To the Editor:—The article "Penicillin in Subacute Bacterial Endocarditis" (THE JOURNAL, November 24, p. 841) by Flippin et al. interested me very much, especially their advice to eradicate secondary foci of infection. They enumerated the tonsils, teeth and middle ear as probably the most frequent sites of focal diseases. To these sites I still firmly believe the spleen should be added as the most likely source of reinfection and the site from which the greatest amount of bacterial toxins is absorbed (Reisman, David; Kolmer, J. A., and Polowe, David: Splenectomy in the Treatment of Subacute Bacterial Endocarditis, *Am. J. M. Sc.* **192**:475 [Oct.] 1936. Polowe, David: Splenectomy in the Treatment of Proved Subacute Bacterial Endocarditis, *Arch. Surg.* **38**:139 [Jan.] 1939).

It is truly stirring to live in an age that is witnessing the conquering of subacute bacterial endocarditis. The controlled use of heparin will probably add to the percentage of cures effected by penicillin. And the judicious eradication of secondary foci of infection such as the tonsils, teeth, middle ear and spleen may bring the total of permanent cures closer to the 100 per cent mark, where we'd like to see it. The person who was the subject of my report in 1939 is still alive and well.

DAVID POLOWE, M.D., Paterson, N. J.

RECURRENT HEADACHE RESULTANT FROM MALARIA

To the Editor:—I was interested in reading the case report of recurrent headache resultant from malaria appearing in the October 27 issue of THE JOURNAL.

Dr. Kaplan's experience with headache during the course of chronic malaria is, as he states, not altogether unusual. It is my observation, however, that the headaches seldom attain the severity he reports for his case, and they are not present or prominent in the vast majority of cases.

In his comment Dr. Kaplan states that "malaria in the Pacific area is a common disease and will become much more common in the United States as more of our fighting men return from zones where they were exposed to the Anopheles maculipennis mosquito." I find it difficult to agree with much of this sentence. Malaria is certainly common on the malarious islands of the Pacific, but the vast Central Pacific, including Guam, Saipan, Iwo Jima, Samoa, Hawaii and many other important bases is malaria free. Anopheles maculipennis mosquitoes do not occur in the Pacific or in eastern Asia, the common Pacific vectors during this war being Anopheles farauti, Anopheles punctulatus and possibly Anopheles minimus, Anopheles hyrcanus, Anopheles sinensis and Anopheles sundaicus in the Philippine Islands and in Asia.

Malaria in the armed forces has declined to extremely low levels as compared with the incidence in 1943 and early 1944 and is at present comparatively rare in naval hospitials. Vast numbers of men with malaria have returned to the United States since early in 1943 without any significant outbreaks or increase of the disease during this time. The majority of men now being returned either have not had malaria or have late and relatively quiescent cases. It must be appreciated that the bulk of troop malaria was acquired early in the war before effective malaria control was established. These early cases have had two or three years to subside, and our statistics clearly show that such subsidence has occurred. In that the last three years have failed to produce the often predicted rise in malaria as a result of exotic infection, it is sincerely doubted that it will occur now or in the immediate future.

Dr. Kaplan goes on to say that in a number of cases with recurrent headaches but without parasitemia he was able to demonstrate parasites invariably by blood film examination after administration of 1 Gm. of quinine sulfate or 0.12 cc. of epinephrine. The use of quinine as a provocative measure has not to my knowledge ever been reported before and requires confirmation. The general experience is that administration of quinine will cause such parasites as are in the circulation to disappear immediately. There was a general rule in many overseas hospitals during this war that in cases of uncomplicated malaria antimalarial drugs would not be administered until after a laboratory diagnosis of malaria was established. Epinephrine as a provocative agent is of dubious value. While it has had its adherents during the present war, several very capable hospital groups had no success whatever with it, and the statement that it invariably induces a demonstrable parasitemia would be difficult to support in any circumstance. The possibility, of course, exists that Dr. Kaplan assumed that other men with headaches who did not respond to his provocative measures did not have malaria.

FRED A. BUTLER, Commander (MC), U.S.N.

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Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Abortion Induced by Sanipractor.—Mrs. Dennis consulted one of the defendants, a woman sanipractor, Feb. 13, 1940, relative to a backache. Apparently the sanipractor administered no treatments on that visit, merely suggesting to her patient that the discomfort might be caused by a cyst, tumor or tipped uterus. However, the sanipractor instituted a course of biweekly treatments February 20, which continued through March 22 and which consisted of "adjustments" to her back, electrotherapy administered by a device which used pads placed on her back and abdomen, and treatments with a vibrating device having a belt against which the patient leaned, turning herself so that contact was made around the abdomen and back. The patient frequently suggested to the sanipractor that she might be pregnant, but the sanipractor assured her she was not although the practitioner made no tests, such as the Friedman or Aschheim-Zondek test, which concededly is from 94 to 98 per cent accurate. Apparently about March 31, to allay the patient's suspicions as to pregnancy, the sanipractor examined her internally and, according to her testimony,

> She took an instrument, a long instrument, and poked up into the uterus and it was very painful, it was awfully painful. And she said—well, she said, "If you was pregnant the mouth of the uterus wouldn't be open." And she drew blood. I saw blood on the end of that instrument.

Seemingly the patient then began to hemorrhage and the sanipractor packed her vagina, telling her that "it would hold the uterus in place, that that was what was causing the pain." The patient continued to hemorrhage and apparently on April 6 visited the sanipractor, who told her "the uterus was tipped badly and it was polyps that was passing and that was good" and that when those would pass away "it would be just fine." She then packed the vagina again "to hold the uterus in position, it would take the pressure, relieve that pain." Against the sanipractor's advice, the patient started on an automobile trip but after going a few miles the pain became so unbearable that she returned to town and was attended by the sanipractor's husband, apparently another sanipractor, who had her hospitalized immediately, where she was attended by a physician. The physician found her in the process of aborting and performed a curettement. Six weeks later he removed both fallopian tubes and a cyst from the right ovary. Subsequently the patient and her husband sued the sanipractor and her husband for malpractice. From a judgment in favor of plaintiffs for $5,000, the defendants appealed to the Supreme Court of Washington.

The defendants in general questioned the sufficiency of the evidence to sustain the verdict on which the judgment was based. They claimed that the testimony of the patient respecting the invasion of the uterus was inadmissible because she could not have testimonial knowledge. We will assume, said the court, without deciding, that this testimony was essential to the patient's case and that without it the evidence would be insufficient to sustain the verdict. This is for the reason that the other treatments, stoutly maintained as not being contraindicated in cases of pregnancy, might have left the case in the realm of speculation. However, as to this evidence of invasion of the uterus, the sanipractor stands on a denial rather than on the proposition that an abortion following an invasion of the uterus would be speculative as to its cause. The invasion of the uterus is based solely on the testimony of the patient as previously set out. We quote the sanipractor's first contention:

> Picture the patient lying flat on her back on a table and the doctor working over her. Could the patient see where the instrument was "poked"? It would be a human impossibility for her to so do unless she was a contortionist. How did she know then, by the sense of feeling? I think not, for it is common knowledge that there are other cavities and orifices entering into the vaginal canal, such as the urethra, and I do not believe the sense of touch is developed to such an acuteness that the layman could know whether an instrument was inserted up into the uterus or some other opening or cavity within the vaginal canal.

No objection was made to the admission of the testimony as quoted earlier in this opinion, but in any event we would not be prepared to say that the patient lacked testimonial knowledge as to the things testified to.

The sanipractor further contended that the testimony of the patient "as to where the instrument was poked" invades the realm of the expert and is beyond the knowledge of ordinary laymen and was therefore inadmissible. However, said the court, no objection was made to the testimony when it was introduced. In any event, we are not prepared to say that it falls in the realm of things beyond common experience of women in general, or requires such knowledge, skill or training not possessed by women generally. Lastly, the appellants contended that the trial court in examining the sanipractor commented on the evidence and that this was reversible error. As an example, the following questions by the court and answers by the sanipractor on the witness stand were relied on:

"The Court: What do you mean? This treatment was not what?

"The Witness: There is none of it that is contraindicated in pregnancy, none that we wouldn't use in a pregnancy case.

"The Court: Did you use the electrical vibrating belt machine? A. I never use that on a pregnant woman. It wouldn't tend to reason—

"The Court (interrupting): Well, I asked you if you used it in this case?

"The Witness: No. It would be entirely foolish for me to first go to work and pack her and work to stop the flow and then put on an electric vibrator to start a flow. I would be working against myself.

"The Court: Well, did you diagnose her case as pregnancy?

"The Witness: I didn't diagnose her case. It yet had not been diagnosed when she quit. She was feeling so much better. She had just been in the office thirty days from the day she started treatment.

"The Court: You had not yet diagnosed her?

"The Witness: No, I had checked her on the machine and followed up to see whether there was any albumin. She had two checks on that."

In any event, said the Supreme Court, the appellants cannot raise this question when there was no objection made in the trial court. However, the court could see no impropriety in the trial court's conduct. It is beyond controversy, said the court, that a trial court has wide discretionary powers in the trial of a cause and is not prohibited from questioning a witness. Such a course, it is true, may constitute a comment on the evidence where it is improperly done. To constitute a comment on the evidence, however, it must appear that the attitude of the court toward the merits of the cause must be reasonably inferable from the nature or manner of the questions asked and things said. This record, in our opinion, does not disclose any grounds for the jury to infer that the court had or expressed an opinion.

The judgment against the sanipractors was affirmed.—*Dennis v. McArthur, 158 P. (2d) 644 (Wash., 1945).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Dec. 29, page 1288.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various Centers, Feb. 4-6. Part III. *Various Centers, March.* Exec. Sec., Mr. E. S. Elwood, 225 S. Fifteenth St., *Philadelphia 2.*

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY & SYPHILOLOGY: *Written. Group B.* April 22. *Oral. Group A and B.* June 6-8. Final date for filing application is March 1. Sec., Dr. George M. Lewis, 66 E. 66th St., *New York 21.*

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May 27. Final date for filing application is Feb. 1. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago 12.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Jan. 18-22 and New York, April 10-13, San Francisco, June 22-25, and Chicago, Oct. 9-12. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: Spring 1946. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: Chicago, May 24-25. Final date for filing application is February 1946. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N. W., Washington 6, D. C.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, February 1946. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Annals of Internal Medicine, Lancaster, Pa.

23:309-490 (Sept.) 1945

Acute Nonspecific Myocarditis. S. Candel and M. C. Wheelock.—p. 309.
Meningococcic Meningitis Treated with Sulfadiazine and Sulfamerazine: Three Year Study. L. K. Sweet, Edith Dumoff-Stanley and H. F. Dowling.—p. 338.
*Coccidioidomycosis in Southern California: Report of New Endemic Area, with Review of 100 Cases. F. M. Willett and A. Weiss.—p. 349.
*Pathology of Sickle Cell Disease. R. C. Murphy Jr. and S. Shapiro.—p. 376.
Diagnosis of Beriberi Heart Disease. M. A. Blankenhorn.—p. 398.
*Treatment of Bronchiectasis with Chemotherapy and Allergy Management. J. W. Thomas, H. S. Van Ordstrand and C. Tomlinson.—p. 405.

Coccidioidomycosis.—The observation of a number of cases of coccidioidomycosis in soldiers engaged in a construction project near Banning, Calif., suggested to Willett and Weiss the existence of a new endemic region. They made repeated skin tests on 573 soldiers (Negro and white) performing a dusty type of work at the edge of the desert. One hundred and thirty-five "change overs" from negative to positive skin reactions were found, of which 83 were hospitalized with acute pulmonary coccidioidomycosis. The 135 cases which showed a change in the skin reaction from negative to positive constitute the epidemiologic group by which the area of endemicity was established. The region in question is a triangular one bounded by Banning and Needles, Calif., and Yuma, Ariz. In the eight months subsequent to the epidemiologic survey 17 additional patients with acute pulmonary coccidioidomycosis have been hospitalized from the desert area, thus making a total of 100 hospitalized cases, almost equally divided between Negro (49) and white patients (51). The disease appeared to be more severe in Negroes. Cavities in 2 white soldiers either closed or showed a tendency to close at the last examination. Of 4 cases of cavitation in Negroes, only 1 closed. The disseminated form, which is by far the most serious type, occurred in 4 patients, all of whom were colored and 1 of whom died. This patient had a generalized miliary dissemination involving virtually every organ and system of the body except the gastrointestinal tract and central nervous system. Of the other 3 patients, 2 had dissemination to bone and the last dissemination to muscle. The average case of acute pulmonary coccidioidomycosis has a good prognosis for complete recovery. There is no "specific" for the disease. Measures such as acetylsalicylic acid, codeine in small doses or other mild analgesics are usually quite sufficient for the acute symptoms. Vaccines have been used with questionable results. Surgical excision has been effective in local abscesses caused by the fungus.

Sickle Cell Disease.—Murphy and Shapiro studied a patient with sickle cell disease for twelve months. He was a Negro aged 21 who complained of generalized muscle and joint pains. He had had frequent and severe attacks of what were believed to have been episodes of acute rheumatic fever since the age of 3 years. The first blood count established the diagnosis of sickle cell disease. During the first ten days the clinical picture continued unchanged, with a low grade fever and migratory pains. Thereafter the patient's course was characterized by the so-called active and latent phases alternately of sickle cell disease. Altogether there were seven "active" periods. Five of these occurred in the form of dramatic crises. The remaining two assumed a less striking pattern. Accompanying the crises were fever and disseminated pains produced by multiple infarctions, which may have been visceral as well as skeletal. Hemolytic aspects representing resolution of thrombi and disintegration of the sickled cells are prominent. The diffuse infarcts stem from the abnormal shape and other physical characteristics of the sickled erythrocyte. During the time a susceptible cell retains the normal shape it is indistinguishable from normal erythrocytes. The act of sickling, however, renders it elongated and rigid, making capillary passage difficult. As the sickled forms gain prominence in the blood stream they eventually form a mechanical impaction, delaying the capillary flow, and thrombosis takes place. This constitutes the fundamental pathologic lesion of sickle cell disease. All erythrocytes of a subject with the asymptomatic sickle cell trait are capable of assuming the abnormal form and differ from those of persons who exhibit the crises only in that they possess a higher threshold of sickling. Susceptible red cells exhibit increased tendency to sickling as they mature. The abnormal form tends to increase progressively during the quiescent periods until mechanical obstruction and thrombosis of capillaries occur. With each thrombosis there are liberated into the circulation certain coagulating bodies (thrombin, thromboplastin) which further enhance thrombosis and accelerate the precipitation of sickled red cells. A self-perpetuating sickle cell "crisis" is thereby inaugurated, which gains momentum until the major part of the sickled cells are destroyed and the blood is again "rejuvenated" by release into the circulation of immature normally shaped cells. Anticoagulant therapy appears to be inadequate to prevent a crisis. If at the abrupt onset of a crisis anticoagulants might postpone the thrombotic tendency, they could not prevent the increased tendency of the cells to sickle as they grow older, which tendency leads inevitably to the vascular occlusions.

Chemotherapy and Allergy Management in Bronchiectasis.—Thomas and his associates found that of 190 consecutive cases of bronchiectasis approximately one half had allergy of the respiratory tract. A clinical study was made of 75 selected cases of bronchiectasis to evaluate sulfonamide therapy and allergy management in treatment. In 55 of these cases an allergy of the respiratory tract was an etiologic or complicating factor. Twenty-three patients received sulfonamide drugs as the chief or only therapeutic measure and were observed for four months to four years. Twenty-two of these patients showed definite improvement with reduction of cough and expectoration. Twenty-one cases treated chiefly or wholly with allergy management were observed for from one to four and one-half years. Fifteen of this group showed frank improvement with reduction in cough and expectoration. In 31 cases combined allergy and sulfonamide therapy was used. Twenty-six cases were found to show at least 25 to 100 per cent improvement in cough and expectoration. They were observed for six months to five years. Exacerbations were frequent in all groups, but almost invariably if sulfonamide drugs were repeated when symptoms first began to return to their former severity continued improvement could be maintained. Likewise, exacerbations occurred often when the allergy program was discontinued.

Journal National Malaria Society, Tallahassee, Fla.

4:155-278 (Sept.) 1945. **Partial Index**

Significance of Palpable Spleens in Malarious Areas of Low Endemicity. R. L. Smith.—p. 155.
Spleen Survey as Applied to Measure of Malaria in United States: Review of Literature. S. S. Spicer.—p. 165.
*On Probability of Soldiers with Pacific Plasmodium Vivax Malaria Infecting Anopheles Quadrimaculatus. R. B. Watson.—p. 183.
Discussion on Caribbean Malaria Control. J. M. Henderson.—p. 189.
Malaria Control in Nonendemic Area. H. L. Felton, R. C. Barnes and A. Wilson.—p. 201.
Review of Equipment Used in Applying Malaria Control Measures on Impounded Waters in Tennessee Valley. C. C. Kiker and R. E. Sparkman.—p. 209.
*Detection of Plasmodia of Human Malaria in Blood Films by Fluorescence Microscopy. R. L. Metcalf.—p. 223.
Description of Anopheles (Nyssorhynchus) Dunhami, New Species from Upper Amazon Basin. O. R. Causey.—p. 231.
Observations on Seasonal Occurrence and Abundance of Anopheles Quadrimaculatus Say. G. H. Bradley and R. F. Fritz.—p. 251.
Detailed Observations on Life History of Anopheles Quadrimaculatus. G. G. Keener Jr.—p. 263.

Possibility of Soldiers with Pacific Plasmodium Vivax Infecting Anopheles Quadrimaculatus.—The studies here reported by Watson were carried out at the Kennedy General Hospital. Anopheles quadrimaculatus mosquitoes were fed on soldiers with relapsing Plasmodium vivax infections presumably acquired in Pacific war areas. Feeding of mosquitoes was done without reference to gametocyte levels, number of relapses experienced, origin of strains or any other variable. Some patients had received two 0.6 Gm. doses of quinine or totaquine before the mosquitoes were fed. After incubation for fifteen days in an air conditioned room these mosquitoes were examined for salivary gland infections. An overall infection rate of 11.8 per cent was found for 1,426 mosquitoes which had been fed on a total of 117 cases, representing 87 different patients. The highest infection rate (17.7 per cent) was obtained in lots of mosquitoes fed on patients with asymptomatic parasitemia. The infection rates for mosquitoes fed on patients who had received treatment were not significantly different from those fed on patients who had received no treatment. It is concluded that many, if not all, strains of P. vivax from Pacific war areas can be transmitted by A. quadrimaculatus and that returning soldiers with such infections may be responsible for the establishment in this country of epidemic or endemic foci of imported vivax strains.

Diagnosis of Malaria by Fluorescence Microscopy.—Metcalf reports a method for fluorescent microscopic identification of the plasmodia of human malaria in blood films. Of fourteen fluorochromes studied, berberine sulfate and rivanol gave the best visualization of plasmodia with the fluorescent microscope. Because of its simplicity the method might be of value in routine malaria surveys. The employment of fluorescent dyes as histologic stains, which are then irradiated with ultraviolet rays, produces a light source in the microscopic object itself. This results in perfect conditions for image formation in microscopy in that refractive difficulties inherent in condensing lenses are eliminated. This fact, coupled with the dark field, produced results of extreme sharpness and clarity. The parasites appear as luminous bodies within the dark outlines of erythrocytes; they can be readily observed even in rapid scanning of the slide.

Journal of Pediatrics, St. Louis

27:1-298 (Sept.) 1945

*Etiology of Kaposi's Varicelliform Eruption. R. J. Blattner, F. M. Heys and Mary L. K. Harrison.—p. 207.

Growth Charts for Use in Pediatric Practice. R. L. Jackson and Helen G. Kelly.—p. 215.

Bone Growth in Congenital Myxedema: Use of Serial Roentgenograms of Os Radius in Diagnosis and Regulation of Therapy During Infancy. P. V. Woolley Jr. and R. W. McCammon.—p. 229.

Acute Disseminated Lupus Erythematosus with Seven Year Recovery: Case Report. D. M. Horstmann.—p. 235.

Edema with Hypoproteinemia Due to Congenital Defect in Protein Formation: Case Report. B. Schick and J. W. Greenbaum.—p. 241.

Comparative Study and Significance of Tuberculin Patch and Mantoux Tests in Children. H. Goldstein.—p. 245.

*Hemolytic Disease of Newborn (Erythroblastosis Fetalis): Clinical Analysis of 55 Cases, with Special Reference to Pathogenesis, Prognosis and Therapy. Martha F. Leonard.—p. 249.

Anemia of the Newborn: Case Report. J. T. Leslie.—p. 265.

Staphylococcus Albus Hemolyticus Meningitis in Infant: Treatment with Sulfonamides Orally with Recovery. H. H. Clemens.—p. 267.

Streptococcal Viridans Meningitis Followed by Pneumococcal Meningitis in Same Patient with Recovery. G. E. Brockway and M. H. Jacobs.—p. 273.

[illegible] Syndrome: Report of 8 Cases at Children's [illegible] D. C. A. Ceballos, T. V. Frank and W. F. [illegible]

Obturator (Acrylic) for the Newborn Infant with Cleft Palate. I. E. Schapiro, A. Walden and G. A. Carman.—p. 288.

Kaposi's Varicelliform Eruption.—Blattner and his co-workers at the St. Louis Children's Hospital treated a patient who had Kaposi's varicelliform eruption. A virus etiology had been suggested, but no etiologic agent had been identified. The authors made an attempt to isolate the infectious agent from the cutaneous lesions of their patient, a boy aged 15 months who had an atopic eczema since the age of 6 weeks and an acute exanthem associated with high fever for five days. Fluid removed from cutaneous vesicles on the fifth and sixth days of illness was cultured by bacteriologic methods, pure cultures of Streptococcus hemolyticus and Staphylococcus aureus resulting. Material from these vesicles was inoculated on the scarified cornea of a rabbit. Lesions were noted within three days. On the fourth day the rabbit cornea was removed, washed in sterile saline solution and triturated in tryptose-phosphate broth in an agate mortar. After centrifugation, the supernatant fluid was Seitz filtered and inoculated into mice intracerebrally and onto the retracted chorioallantois of embryonated hen's eggs. The mice developed convulsions and died in from two to four days, and by the fourth day numerous small, pocklike lesions were observed on the chorioallantoic membranes. Other samples of vesicular fluid inoculated directly onto the chorioallantoic membrane produced lesions in from four to five days. The fact that the virus was isolated not only by means of the rabbit's cornea but also directly on the chorioallantois would seem to exclude a latent herpes virus which might have been reactivated in the rabbit by experimental manipulation. The virus was identified as a member of the herpes group. The authors conclude that a strain of herpes virus is the etiologic agent involved in at least some of the cases diagnosed as Kaposi's varicelliform eruption. Strains of herpes were isolated and identified in two other laboratories.

Hemolytic Disease of the Newborn.—Leonard reviewed records of 55 infants with hemolytic disease who were treated in the pediatric service between July 1938 and June 1944. The infants showed most or all of the characteristic clinical signs: jaundice, progressive anemia, hepatomegaly, splenomegaly, hemorrhage, edema, excessive numbers of nucleated red blood cells in the circulating blood and the typical pattern of Rh negative blood in the mother and Rh positive blood in the father and baby. Only liveborn babies were included. The clinical picture in these 55 cases varied greatly. A high incidence (44 per cent) of nonspecific diarrhea was noted. The effects of transfusion with Rh positive, Rh negative blood and bank blood not typed for the Rh factor were compared. Immediate results following transfusion in raising hemoglobin and improving clinical condition were good, but Rh negative blood transfusions caused a better sustained rise in hemoglobin, fewer reactions and lower mortality. Nineteen infants died. One of the chief causes of death was hemorrhage. Jaundice out of proportion to or in the absence of anemia was attributed to impaired liver function. This thesis was supported by low prothrombin levels responding poorly to vitamin K administration, fatty degeneration and necrosis of the liver. Plasma infusions were preferred in this type of patient. The prominence of hemorrhagic tendencies in patients with hemolytic disease of the newborn was emphasized and its relation to low prothrombin levels demonstrated. Administration of vitamin K to donors of Rh negative blood was suggested as a means of raising the prothrombin levels of affected infants.

Journal of Urology, Baltimore

54:1-220 (Aug.) 1945

Massive Renal Fibrolipoma: Report of 2 Cases. C. Tahara and E. Hess.—p. 107.

Renal Hypoplasia with Hydroureter and Primary Amenorrhea: Report of Case. F. M. Huff and W. P. Boger Jr.—p. 116.

Penicillin: An Adjunct in Nephrolithiasis: Case Report. H. Bodner and M. K. Moulder.—p. 123.

Renal Disease in AAF Regional Station Hospital. H. R. Newman.—p. 126.

Primary Carcinoma of Ureter, with Special Reference to Hydronephrosis: Review of Literature and Report of Unusual Case. J. A. Lazarus and M. S. Marks.—p. 140.

Case of Ureterocele with Stone Formation in Ureter, Ureterocele and Bladder. H. R. Sauer.—p. 158.

Late Invasion of Bladder and Prostate by Carcinoma of Rectum or Sigmoid. G. D. Oppenheimer.—p. 162.

*Transurethral Prostatic Resection in Patients with Advanced Renal Insufficiency. L. F. Greene and G. J. Thompson.—p. 166.

Suprapubic Prostatectomy: Revised Operation. I. J. Zimmerman.—p. 174.

Sacrococcygeal Teratoma in Infant of Five Months Causing Acute Urinary Obstruction. S. R. Woodruff and J. A. Begner.—p. 177.

*Rarity of Stones in Urinary Tract in Wet Tropics. A. Davalos.—p. 182.

Tumors of Urinary Drainage Tract: Urothelial Tumors. M. M. Melicow.—p. 186.

Studies in Urinary Calculosis. L. D. Keyser.—p. 194.

Urea and Sulfonamides in Treatment of Gonorrhea. J. G. Menville and C. W. Ross.—p. 211.

Transurethral Prostatic Resection in Advanced Renal Insufficiency.—Greene and Thompson review observations on 54 patients who entered the hospital with renal insufficiency due chiefly to prostatic obstruction and on whom transurethral prostatic resection was performed in the presence of severe renal insufficiency In every case the prostatic resection was performed at a time when the blood urea, though reduced, still remained 100 mg per hundred cubic centimeters or more, the value of 100 mg per hundred cubic centimeters to denote renal insufficiency was selected because this represents severe impairment of renal function The authors conclude that transurethral prostatic resection can be performed safely on patients suffering from advanced renal insufficiency and these patients are no longer obliged to lead a "catheter life" The important features of management are (1) improvement or restoration of the acid base metabolism by the intravenous administration of suitable fluids and the treatment of anemia by blood transfusions, (2) maintenance of a urinary output of 2,000 to 3,000 cc daily, thereby producing a fall in the nitrogenous waste products present in the blood, (3) drainage by urethral catheter for as short a period as possible, suprapubic cystotomy with its attendant mortality not being necessary, (4) operation at the first indication that the value for the blood urea is no longer falling but has become stabilized and (5) completion of the resection within forty-five minutes The period of preoperative and postoperative hospitalization for patients with advanced renal insufficiency is comparatively short when they are treated by transurethral prostatic resection Longevity following prostatic resection among patients of this group warrants the procedure Gastrointestinal symptoms due to renal insufficiency have been relieved in spite of the fact that renal function remains impaired

Stones in Urinary Tract in Wet Tropics—According to Davalos it has long been known that urinary stones are much more prevalent in some countries and districts than in others, and this unequal distribution has given rise to numerous theories as to the influence of climate, soil and the dietary habits of a people on the formation of stones The geographic distribution of lithiasis in South America has received much less study than it has in other parts of the world, but available statistics indicate that urinary stones are common throughout the southern part of the continent, especially in the northern and central districts of Chile and in many sections of Argentina In Brazil cases of urinary stone are common in the northeastern portion and numerous in the southern section but are rare in the Amazon Valley The latter region has the same climate as the Ecuador Mountains—that is, hot and humid the year round—and the living conditions and diet of the inhabitants are essentially similar Panama is another locality with approximately the same climatic conditions and dietary habits, and here also lithiasis is infrequent In investigating the reasons for the almost complete absence of urinary stones in the tropical regions of Ecuador, Davalos approached the subject from three angles (1) the local geographic conditions, (2) the diet of the people and (3) urine examination Among 60,000 patients observed in the southern part of Ecuador there was not a single one with urinary lithiasis The author stresses that in the wet tropics the high temperature induces profuse perspiration, which, by eliminating a considerable part of the metabolic output through the skin, materially decreases the eliminatory strain on the kidneys The low urinary p_H prevents the growth of urea splitting organisms (proteus, ammoniac, coli), and there is no precipitation of phosphates and carbonates in the urinary tract It would appear that, in tropical Ecuador at least, climatic conditions are primarily responsible for the rarity of urinary lithiasis, since the poorly balanced vitamin deficient diet of the inhabitants, far from preventing stone formation, is conducive to it

Union Médicale du Canada, Montreal

74:1355-1504 (Oct) 1945

Rh Factor Origin Research and Significnace A Bertrand—p 1360
Contact Roentgenotherapy in Malignant Lesions of the Mouth G Pinsonneault—p 1368
Transurethral Resection R Cauchon—p 1370
Postoperative Atelectasis or Post Traumatic Bronchoscopy and Oxygenotherapy V Latraverse—p 1373
Three Cases of Allergic Drug Dermatitis H Smith—p 1377.
Intestinal Amebiasis Case V Noel—p 1381
Placenta Previa Case M Ferron—p 1383

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below Single case reports and trials of new drugs are usually omitted

British Journal of Experimental Pathology, London

26:137-216 (June) 1945

Toxicity of Sulfadiazine and Sulfaguanidine to Macrophages in Vitro F Jacoby—p 137
Effect of Tetrathionate on Bacterial Growth R Knox—p 146
*Renal Blood Flow in Experimental Crush Syndrome C A Keele and D Slome—p 151
Influence of Chemical Constitution on Antibacterial Activity Part II General Survey of Acridine Series A Albert S D Rubbo R J Goldacre, M E Davey and J D Stone—p 160
Age and Dosage in Induction of Breast Cancer in Mice by Mouse Mammary Tumor Agent L Dmochowski—p 192
Production Purification and Titration of Neurotoxin of Shigella Dysenteriae C G Anderson, A M Brown and J C Macsween—p 197
Influence of Coagulase on Phagocytosis of Staphylococci J H Hale and W Smith—p 209

Experimental "Crush Syndrome."—Keele and Slome studied renal blood flow in cats following experimental limb compression They found that following release after four or five hours of complete limb ischemia in chloralosed cats there is a fall in blood pressure and a great reduction of renal blood flow When the blood pressure is reduced to the same extent by hemorrhage there is a smaller reduction in renal blood flow than with limb ischemia The reduction in renal blood flow following release of ischemic limbs may be, in part at least, responsible for the renal tubular damage of the "crush syndrome" type

British Journal of Surgery, Bristol

33:1-100 (July) 1945

Medical and Surgical Aspects of "The Forty Five Jacobite Rising of 1745 1746 G Gordon Taylor—p 1
*Immersion Foot Syndrome C C Ungley, G D Channell and R L Richards—p 17
Major Amputation Stump in Health and Disease I G S Strange—p 31
Asepsis in Prostatectomy W H Hey—p 41
The Abdominal Wound in the Field G Blackburn and C G Rob—p 46
Treatment of Cervical Collar Stud Abscesses with Skin Involvement H Bailey—p 53
Pathology of Colloid and Nodular Change in Thyroid Gland and Its Application to Surgery of Nodular Goiters L Martin—p 62
Late Treatment of Dorsal Injuries of Hand Associated with Loss of Skin J B Cuthbert—p 66
Addisonian Anemia Following Enteroanastomosis J L Richardson—p 71
Experiences in Prophylaxis and Treatment of Clostridial Infections in Casualties from Invasion of Europe T C Patterson, C Keating and H W Clegg—p 74

Immersion Foot Syndrome—Ungley and his associates consider immersion foot as a disorder characterized by chilling of the tissues distinct from freezing or frost bite The condition is most frequently seen in shipwreck survivors but may result from any circumstances in which there is prolonged exposure of the extremities to moist cold Trench foot presents a clinical picture similar to that of immersion foot, and the two conditions are akin if not identical The immersion foot syndrome has four phases During the period of exposure the limbs are numb In the second or prehyperemic phase the sensory disturbances which occurred during exposure continue For some hours after rescue survivors are frequently unable to maintain their balance or, if able to walk, they describe the sensation as "walking on air" or 'walking on cotton wool' There is a "stocking" type of sensory disturbance During the third or hyperemic stage the previously cold, pulseless feet become hot and flushed The onset of the hyperemic stage may be accelerated by warming the feet, a procedure the authors condemn With hyperemia there is continuous diffuse pain Patients are restless and require large doses of sedatives and analgesics About the seventh to tenth day after rescue, pains of a shooting or stabbing character not unlike the lightning pains of tabes dorsalis occur radiating from the center of the foot to the tips of the toes These pains are aggravated by heat and relieved by cold, they are most severe when the feet are dependent, after exercise and when the feet are warming, e g after getting into bed at night Exceptionally, attacks of stabbing pain may be precipitated by micturition, defecation, coughing or yawning. In the early hyperemic stage movements of the ankle and toes are hampered by swelling. As edema subsides, weakness and wasting of the intrinsic muscles of the foot become apparent and the toes become clawed. When patients begin to walk they have a flat-footed springless gait. The fourth or posthyperemic stage may be absent; mild cases pass from the phase of hyperemia to normal. In the moderately severe cases the first indication that a change is about to occur is that the feet, previously consistently warm, are cool. Later still the feet become permanently cold and are "cold sensitive." In some cases the feet are also heat sensitive; after exercise or when the patient is in bed the feet become unbearably hot and he is forced to take measures to cool them. Hyperhidrosis frequently accompanies the cold sensitivity. Cold therapy is of value for the relief of pain in the hyperemic stage but should not be used in the prehyperemic stage. Sympathectomy and other measures designed to increase the peripheral circulation should not be employed immediately but may have a place in the treatment of the later cold sensitive state.

Quarterly Journal of Medicine, Oxford

14:125-182 (July) 1945

Epidemiology of Infective Hepatitis in Some Units of British Army in Sicily and Great Britain, 1943-1944. A. M. McFarlan.—p. 125.
Spinal Osteoporosis of Unknown Origin. H. J. Burrows and G. Graham.—p. 147.
Renal Function and Prognosis in Benign Hypertension. M. McGeorge.—p. 171.

Archives Francaises de Pédiatrie, Paris

2:89-132 (No. 3) 1944-1945

Ocular Hypertelorism. M. Péhu.—p. 89.
Hyperalbuminosis in Clear Cerebrospinal Fluid of Infants with Low Viability. J. Lévesque and L. Callerot.—p. 93.
Anemia of Newborn: II. Attenuated Forms and Erythrolytic Crisis at Birth. M. Lelong, R. Joseph and Miss M. M. Garnier.—p. 101.
Enormous Polycystic Hemolymphangioma of Great Omentum Simulating Bloody Ascites. M. Fèvre and Lecointe.—p. 107.
*Periarteritis Nodosa or Kussmaul-Maier Disease: First Case Diagnosed in Infant During Life; Rapid Recovery from Therapy with Sulfapyridine and Acetylcholine. J. Legros.—p. 112.

Periarteritis Nodosa in an Infant.—Legros reports the occurrence of periarteritis nodosa in a girl aged 9 months. There was edema of the lower extremities, a macular rash with numerous purpuric spots and palpable small subcutaneous nodules. The muscles of the lower and of the upper extremities were extremely tender. Necrosis of the purpuric areas occurred within twenty-four hours. Diagnosis of periarteritis nodosa was made. Biopsy of a nodule revealed a circumscribed necrosis of the epidermis with clear demarcation of the living portion of the skin. The necrotic portion of the skin was characterized by perivascular infiltration with alteration of all the layers of the corium. The nodule appeared as a cone with the base composed of necrotic epidermis and at the summit an artery with the lumen obstructed by a fibrinous thrombus, poor in cells. The intima appeared partly disorganized. The two accompanying veins were not involved. The bacteriologic examination was negative except for a hemolytic streptococcus, which was cultured from the pharynx. A positive reaction was produced in the patient and in her mother by a subcutaneous injection of a heated culture of this streptococcus, while a negative reaction was observed in 4 other infants. Treatment consisted of one-fourth tablet of sulfapyridine given eight times daily and of 0.1 Gm. of acetylcholine administered twice daily by the intramuscular route. This therapy was continued for five days. Within two days the temperature dropped from 104 F. to normal and the edema was considerably reduced. The edema and muscle pain subsided completely within the next three days. The necrotic crusts separated, leaving scars which resembled those seen occasionally following chickenpox. The rapid healing of the cutaneous lesions was striking. This supports the concept of an allergic origin of the disease, which was suggested also by the positive cutaneous reaction of the patient and by the negative reaction of other infants. The concept of sepsis due to the streptococcus is suggested by the effectiveness of chemotherapy. Sulfonamide therapy appears to be indicated in the acute stage of this disease. Two cases of periarteritis nodosa in infants have previously been published but were diagnosed only on postmortem examination. The author's case is the first diagnosed during life.

Presse Médicale, Paris

53:441-452 (Aug. 18) 1945

Grave Malnutritions at Present Time: Bioclinical Remarks on Athrepsia. G. Mouriquand.—p. 441.
*Treatment of Nitrogen Deficiency of Various Origins by Means of Protein Hydrolysates. L. Chevillard, R. Jacquot and J. Roche.—p. 442.
Significance of Presence of Tubercle Bacilli in Sputum of Patients with Pulmonary Tuberculosis Treated in Sanatorium. J. C. Levaditi.—p. 443.

Protein Hydrolysates in Nitrogen Deficiencies.—Chevillard and his associates point out that it is possible to supply the nitrogen needs of man by the administration of sufficient amounts of a mixture of amino acids. Since, for economic reasons, it is not feasible to do this with pure amino acids, investigators have resorted to protein hydrolysates. Those which must be derived from complete proteins (casein or meat) are of two types. One type, the hydrolysates resulting from enzymatic digestion, can be employed without any addition, for their amino acids have not been altered by proteolysis and they contain amino acids and polypeptides of low molecular weight. Other types are products of a total acid hydrolysis of proteins with added tryptophan. The nutritive value of these diverse products is the same, but they are administered differently. The preparations of enzymatic origin are administered by mouth in a 5 per cent solution which also contains from 7.5 to 10 per cent of dextrose. The taste of such mixtures must be masked by citric acid. They are ingested in small quantities or are introduced into the stomach by nasal tube. When the acid hydrolysates with added tryptophan are administered by the intravenous or subcutaneous route, a well trained personnel is required, for patients must be carefully supervised because of the danger of thrombosis or violent febrile reactions. Satisfactory results were obtained with this treatment during the famine in Bengal in 1943 and also in many cases of severe hypoproteinemia among those liberated from German internment camps. Patients with extensive burns, children with athrepsia, patients in surgical shock or those with nitrogen deficiencies of various toxic or infectious origins benefit from the intravenous or subcutaneous injection of protein hydrolysates.

Acta Chirurgica Scandinavica, Stockholm

92:199-290 (May 31) 1945. Partial Index

*Volvulus Caeci. A. Jakobsen.—p. 199.
Intradural Situation of Disk Prolapse. O. Hultén.—p. 228.
Lymphadenitis of Mesentery in Children and Young People in Light of Bacteriologic and Pathologicoanatomic Examinations of 100 Cases Treated by Appendectomy. E. E. Vuori.—p. 231.
Late Results in Nonoperative Cases of Malleolar Fractures: III. Fractures by Supination Together with Survey of Late Results in Nonoperatively Treated Malleolar Fractures. R. Magnusson.—p. 259.
Pneumoperitoneum Treated with Puncture and Injection of Sulfathiazole: Report of 1 Case. A. Zacho.—p. 278.
Observations on Cause and Social Significance of Ulcers of Legs. Å. Nilzén.—p. 285.

Cecal Volvulus.—Jakobsen in recent years has noted a pronounced increase in the number of cases of cecal volvulus in the surgical department of Ulleval Hospital in Oslo. The direct cause of this increased incidence may be found in the diet during the rationing of food in Norway. Coarser and darker bread, large quantities of kohlrabi and potatoes leave much residue and produce more gas. Various degrees of intestinal atony may result. In addition there may occur a reduction of the fat content in the mesenteries, a natural consequence of the general emaciation. The 5 cases reported showed a mesenterium ileocolicum commune. This anomaly is a necessary condition for the occurrence of cecal volvulus. The patients were 10, 13, 20, 30 and 80 years of age respectively. There were 3 male and 2 female patients. Diagnosis may be made by roentgenogram. Treatment consists in detorsion, emptying of the bowel through an intestinal tube inserted into the rectum, and fixation of the cecum in cases in which the bowel is not damaged. Resection in two stages, or sometimes in one stage, with ileotransversostomy is to be performed in cases in which the intestine is damaged.

Book Notices

Pulmonary Tuberculosis in the Adult: Its Fundamental Aspects. By Max Pinner, M.D. Chief, Division of Pulmonary Diseases, Montefiore Hospital for Chronic Diseases, New York. Fabrikoid. Price, $7.50. Pp. 579, with illustrations. Springfield, Ill.: Charles C Thomas, 1945.

In this book the author set out to demonstrate that it is possible for one writer to cover "in toto" the subject of pulmonary tuberculosis adequately and consistently. He contends that existing textbooks written by one author are inadequate in covering the theoretical aspects, while textbooks written by several authors lack consistency of presentation of the various phases of the subject. As a one author book it is an eminent success. To assemble it Dr. Pinner has made ample use of his command of the literature, his erudition and his gift for skilful presentation. The result is an excellent reference book on pulmonary tuberculosis. The book addresses itself chiefly to tuberculosis specialists. By inference these are mostly in need of instruction in what Pinner considers to be the fundamental aspects of their specialty. This instruction is given to them in this book of 550 pages, of which 350 deal with the pathology, immunology, pathogenesis, epidemiology and the physiologic implications of pulmonary tuberculosis. Of the remaining 200 pages, 60 are taken up by reviews of an imposing amount of literature. This leaves 150 pages to be devoted to the clinical phases of pulmonary tuberculosis, including its treatment. Most of the chapters are finished essays on their respective phases of the subject. They are so well rounded and concise presentations that they might well be published as separate essays. The author's preferences, individual inclinations and preoccupation are revealed in the size of these essays. Judging from the extent of the first few chapters, it would seem that the enterprise began as a presentation of the theoretical phases of pulmonary tuberculosis. Then a brief outline of the clinical aspects was added to complete the work. A discussion of the epidemiologic problems was attached to the end in what appears almost as an afterthought. Finally, much space was filled in between the chapters by the invention of a new feature, namely epigrammatic reviews of relevant literature. The book is thus made up of a collection of essays assembled in logical order to cover the whole subject. Every chapter is replete with data imparting a wealth of theoretical and factual knowledge. A large measure of consistency has been achieved throughout by carrying forward the author's favorite ideas with great skill.

The least that can be said of this work is that it represents an excellent exposition of the state of our knowledge of and concepts about pulmonary tuberculosis at this time. As such it was well worth the author's effort. Students of the disease will welcome the convenience of having assembled in this concise little volume a regular reference book to all phases of the subject. The general medical reader must find the volume topheavy with theory, affording but a small bird's eye view of the vast complexity of pulmonary tuberculosis as seen in clinical practice. The tuberculosis specialist too must question the term "fundamental" as applied to the immunologic, pathogenic and epidemiologic theories, particularly in the case of pulmonary tuberculosis. The most one can say is that it behooves every tuberculosis specialist to be familiar with our current ideas of the theoretical aspects of tuberculosis even though these are still in such a nebulous state as to have little if any bearing on our clinical thinking, let alone on the treatment of the disease. Even many of the older and newer concepts of the pathology never had the same bearing on the clinical interpretation in pulmonary tuberculosis as in other disease. For example, the pathologic theories which interpret Boeck sarcoid as a noncaseating form of tuberculosis has little bearing on the clinical evaluation of this elusive disease. Unfortunately, it is still true that a good practical textbook can be written on clinical pulmonary tuberculosis without consideration of the immunologic, pathogenic or epidemiologic theories.

On the whole, the book is probably the best of its kind published so far in the English language. Its success should be assured.

New Directions in Psychology: Toward Individual Happiness and Social Progress. By Samuel Lowy, M.D. Introduction by Herbert Read. Cloth. Price, $3. Pp. 194. New York: Emerson Books, Inc., 1945.

The author is a psychoanalyst practicing in England but originating in Czechoslovakia. He presents for lay people an application of psychoanalysis to social problems and terms the result a new social psychology. He does an excellent job of interpreting his technical knowledge and applying it to larger groups. The book is well written and interesting. However, the author has a peculiar propensity of using the abstract term "the state" as if it were an organization apart from "the people." To one familiar with Europeans it is apparent that the state means to the author something different than government means to Americans. He analyzes the neuroses gratified in members of the government of an authoritative state and the neuroses of those who willingly subjugate themselves to such a state and warns of the inherent dangers. He also believes that human weaklings must be guided and compelled by the state. One gets the impression that the author intellectually decries authoritative society but leans to it emotionally. The reviewer believes that understanding the emotional lives of sick individual persons does not help in analyzing a sick society.

The Management of the Mind. By Milton Harrington, M.D. Edited from posthumous manuscripts and notes by Ralph B. Winn, Ph.D. Cloth. Price, $3. Pp. 200. New York: Philosophical Library, 1945.

The author, who died in 1942, was a psychiatrist who held many positions during his lifetime and wrote "Wish Hunting in the Unconscious" and "The Biological Approach to the Problem of Abnormal Behavior." His widow and friends felt that the manuscript notes of this book should be edited and published as a memorial to his struggles and labors for a more scientific psychiatry. Under such circumstances a reviewer should be willing to overlook much for the sake of those who have idealized the author. But this he cannot honestly do. The contents are unscientific, consisting largely of musts, shoulds and must nots as directions to lay people who would understand themselves. There is no indication of any understanding of modern dynamic psychiatry or of the use of psychotherapy adapted to the treatment of mental or emotional disturbances. There is more criticism of others than constructive effort.

The Eternal Ones of the Dream: A Psychoanalytic Interpretation of Australian Myth and Ritual. By Géza Róheim, Ph.D. Cloth. Price, $4.50. Pp. 270, with illustrations. New York: International Universities Press, 1945.

This book is intended for anthropologists rather than for physicians. It contains great quantities of technical empirical details concerning primitive Australian culture. The author concludes: "Totemism as a social institution is a defense organized against the separation anxiety. . . . It represents our efforts to deal with the problem of growing up, aided by the illusion of an eternal future. In the eternal ones of the dream it is we who deny decay and aggression and object loss and who guard eternal youth and reunion with the mother. The old and decrepit men of the tribe become young and glorious once more." The book is intended for specialists rather than for the casually interested reader.

Needle in a Haystack: The Exciting Adventures of a Federal Narcotic Agent. By William J. Spillard as told to Pence James. Cloth. Price, $2.50. Pp. 193, with illustrations by Brinton Turkle. New York & London: Whittlesey House, McGraw-Hill Book Company, Inc., 1945.

William Spillard was a narcotic agent working out of the Chicago office of the Federal Narcotics Bureau, whose experiences led him into many contacts with criminal members of the medical profession who profited by violating the antinarcotic laws. He also had a great deal of experience with pedlers and addicts all over the country. With the aid of Pence James this experience has been made not only interesting but at times even amusing in its recounting.

Thy Health Shall Spring Forth: Readings in Religion and Health. By Russell L. Dicks. Cloth. Price. $1.25. Pp. 61. New York: Macmillan Company, 1945.

The chaplain of Wesley Memorial Hospital in Chicago presents here prayers and poems which have been helpful and stimulating to patients in the hospital. It is a book to give courage to people who are in the process of regaining health.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DDT POISONING

To the Editor:—Approximately three weeks ago I had all the symptoms of hay fever, that is, swelling of the turbinates, profuse rhinorrhea and slight itching of the conjunctiva. The symptoms were most pronounced at night and disappeared during the day when I was at my office. A smear of the nasal secretion showed 12 per cent eosinophils. The blood smear showed 10 per cent eosinophils and a total white blood cell count of 13,000. The daily mouth temperature never exceeded 99 F. Having had no previous history of hay fever or other allergies, I was surprised at the sudden onset. A friend who heard me say that I had started using DDT spray at about the same time suggested that I try a patch test. This was positive, with erythema and a raised border, but no actual vesicles were seen. The erythema lasted for three days. The problem at present is how to desensitize myself and how to decontaminate the household. Any help you can give me will be appreciated

M.D., Texas.

To the Editor:—A man aged 54 suddenly had an attack of symptoms similar to those of insulin shock. He said that he felt himself going to pieces, feeling weak about the middle of his body, as though his shoulders were separated from his pelvis by an empty space, and with a subjective feeling of confusion rather than dizziness. I saw him two hours after the onset of his symptoms, during which time he had taken a glass of orange juice and some hot chocolate, with no alleviation. Also during this time he had taken care of a customer, lifting a heavy package and then taking a walk around the block to get fresh air. He said he used his will power to overcome his symptoms. The symptoms continued for several hours longer. There were no gastrointestinal symptoms. Fluoroscopic examination of the chest and taking of the pulse, an electrocardiogram and the blood pressure gave normal findings. The temperature was 97 F. In spite of his symptoms he was able to run up stairs in a lively manner. There was nothing in his food habits or other conditions of the past week which might account for the symptoms except that three days prior to the attack he had done a lot of spraying with a kerosene 5 per cent solution of DDT in a small room. His symptoms abated about eight hours after onset with no medication. On the following day he took his usual walk of several miles with his usual vigor and enjoyment and with no untoward results. Is this a case of DDT poisoning?

M.D., New York.

ANSWER.—1. Pure DDT (2,2 bis(p-chlorophenyl) 1,1,1 trichloroethane) does not cause irritation of the skin in either animals or man, nor is there definite evidence of a sensitizing effect on the skin or of production of other allergic manifestations such as asthma. However, certain solvents used in the preparation of DDT mists, sprays and aerosols are in themselves skin irritants if there is sufficient exposure. In addition, it should be pointed out that contamination of the skin with some of these solvents may cause such symptoms as paresthesias and anesthesias. The vapors of the solvents on inhalation, owing to their property of causing irritation of the mucous membranes, may cause the onset of asthmatic symptoms in a person who is asthmatic. The usually used 5 per cent DDT-95 per cent kerosene spray is a primary skin irritant, because of the kerosene. Therefore one would expect a positive patch test. Individuals vary in their skin reaction to kerosene; since this is not a sensitization phenomenon but a straight irritant action, desensitization need not be considered. As a rule the kerosene or other solvent used in the DDT insecticidal spray will evaporate from the surfaces sprayed after a period of a few weeks.

2. This is not a case of DDT poisoning. Although no cases of proved DDT poisoning in human beings apparently have occurred in the United States, it is probable that the same toxicologic picture as seen in animal experiments should prevail in human cases of DDT poisoning. The symptomatology of animals suffering from DDT poisoning is characterized by hyperexcitability, nervousness, generalized tremors, the clonic-tonic type of convulsions and coma, usually ending in death. These symptoms become manifest a few hours after exposure. The major exposure when using a 5 per cent DDT-95 per cent kerosene spray in an enclosed space is to the kerosene droplets and vapor. Any solvent suitable for dissolving DDT, which is very insoluble in water, is liable to cause irritation of the skin as a result of the same physicochemical properties which render it valuable as a DDT solvent. For the same reason they may cause irritation of the mucous membranes and in sufficient concentrations may cause systemic effects, such as nausea, vomiting, fatigue, headache and other nervous system manifestations. These symptoms usually become manifest very soon after exposure, and since the symptoms in the case cited occurred three days after exposure, it is further evidence that the spray which contained DDT was not the cause of the symptoms.

DIAGNOSIS OF UNDULANT FEVER

To the Editor:—This state has recently passed a law making undulant fever compensable as an industrial disease. There seems to be a good deal of confusion among doctors and in the literature as to how a diagnosis of undulant fever can be legally established. I realize that a positive blood culture will definitely establish the disease. The blood culture, however, is often negative even if repeated tests are taken. How reliable may agglutination tests be regarded? If an agglutination test is negative three weeks after the onset of illness, is it possible for the disease to still be undulant fever? How is an atypical agglutination of 1:50 or less to be regarded in the presence of clinical symptoms of the disease? Furthermore, how may an atypical agglutination of this titer be regarded in the absence of symptoms or in a routine check-up of a patient? A skin test is often positive in the presence of a negative agglutination test; may this be regarded as a positive diagnosis or just an indication that the disease may be undulant fever? The opsonocytophagic test is not always available.

M.D., Minnesota.

ANSWER.—In the absence of positive cultures the diagnosis of brucellosis cannot be established on either clinical criteria alone or on laboratory findings alone. All noncultural laboratory tests, if positive, must be interpreted only to the extent that a positive tuberculin test in an adult is interpreted: that at some past time the person has reacted to Brucella or derivatives. Therefore the diagnosis of existing disease depends on positive tests in conjunction with symptoms and signs that are compatible with brucellosis plus, preferably, historical evidence of exposure to this infection. Asymptomatic persons with positive tests who have never had previous injections of Brucella materials in any form have probably had the disease at some previous time. The disease may have been recognized or not, and it may have been wholly subclinical or inapparent. The reliabilities of the noncultural tests are fairly well known. They vary in relation to the stage of the disease at which they are applied. Agglutination tests are most reliable in the acute febrile stage, but even here they fail in about 10 per cent of cases. In subacute or chronic brucellosis positive agglutination tests occur in about 50 per cent of cases and the titers are usually 1:80 or lower. Opsonocytophagic tests give about 3 per cent of falsely negative reactions in either the acute or chronic forms. Brucellergen intradermal tests give about 10 per cent falsely negative reactions during the initial febrile stages and are slightly more reliable in the chronic disease. Diagnostic difficulties will become fewer if all three noncultural tests are applied in proper order to all persons suspected of having brucellosis, and especially if and when emphasis is placed not on this or that test or its degree of positivity but on test results considered in conjunction with clinical and epidemiologic findings.

TRANSMISSION OF TUBERCULOSIS FROM MOTHER TO INFANT

To the Editor:—Is it possible for a baby to contract tuberculosis from nursing its mother by milk alone? L. H. Brevard, M.D., Deeson, Miss.

ANSWER.—Tubercle bacilli in the milk is a rarity except when the mammary glands become tuberculous. Although they have been reported in the milk in the absence of demonstrable lesions of the mammary glands, in most instances there is no evidence that it was expressed under septic precautions. Moreover, there is always the possibility of tuberculous lesions existing in the mammary glands which cannot be detected by the usual examination. Although the mammary gland is not a common site for the development of tuberculosis, a good many unmistakable cases have been reported. Because of the prevalence of the bovine type of tubercle bacilli formerly reported in cow's milk, it was thought that these organisms were excreted by the mammary gland. However, later investigations revealed that the source of contamination was feces containing tubercle bacilli on the surface of the udder, which caused the contamination during the process of milking. In some instances the mammary gland itself was found to be tuberculous, and tubercle bacilli were eliminated through the milk.

From 5 to 10 per cent of the persons with advanced tuberculosis may have tubercle bacilli recovered from the blood stream on a single examination, and it is probable that 95 per cent of them have occasional showers of tubercle bacilli into the blood stream. However, the child of the tuberculous mother is well protected against them. They probably never enter the circulation of the fetus except when the placenta becomes tuberculous or some other disease breaks down its barrier effect. Moreover, tubercle bacilli in the blood stream do not enter the mother's milk except when lesions exist in the mammary gland itself. Despite the fact that the milk of a tuberculous mother whose mammary glands are normal does not contain tubercle bacilli, it is almost impossible for such a mother whose sputum is positive for tubercle bacilli to nurse her infant without causing infection.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 130, No. 2 | Chicago, Illinois | January 12, 1946

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NONSPECIFIC REACTIONS IN ROUTINE BLOOD TESTING FOR SYPHILIS

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In a fourteen month period from December 1943 to February 1945 an investigation was sponsored by the Committee on Medical Research and the Venereal Disease Subcommittee of the National Research Council, supported by a grant from the Office of Scientific Research and Development, into the problem of the nonspecific positive (so-called "biologic false positive") reaction for syphilis. The bloods of Red Cross donors at the Philadelphia Blood Donor Center supplied the material, and the Institute for the Control of Syphilis at the University of Pennsylvania and the Graduate Hospital of the University of Pennsylvania conducted the case investigations. In all, 210,261 blood specimens were tested in a nine months period, and 79 of the donors showing definite positives ("unsatisfactory bloods") were subjected to subsequent critical clinical and laboratory examination. The studied series was enlarged to 98 cases by additional persons from private practice in whom possible nonspecific positive reactions for syphilis had been obtained largely in various forms of routine blood testing (premarital, industrial, general diagnostic practice).

The clinical histories and physical examinations were made by the staff of the Institute for the Control of Syphilis, no physician of less than two years' special experience in syphilis diagnosis being engaged in the work. All cases were subjected to still more experienced consultation and review. Additional laboratory tests were performed on simultaneously drawn specimens by the Boerner classification procedure at the Graduate Hospital of the University of Pennsylvania under the direction of Dr. Fred Boerner by a seven test "battery" at the Staten Island Research Center, United States Public Health Service, under the direction of Dr. John Mahoney, and in some cases by additional laboratories, including especially the Pennsylvania State Laboratory under Drs. Verner Nisbet and Claude Brown. A wide range of special clinical studies reinforced the physical examination (chest x-rays, cardiologic studies, slit lamp examinations and other work). Spinal fluid examinations, repetition of serologic tests, heterophile antibody reactions, brucellosis, typhoid agglutination tests and albumin-globulin estimations reinforced when indicated the preliminary survey. The results in each case were passed on repeatedly by a reviewing board[1] and a decision as to the diagnosis of syphilis or nonspecific serologic reaction was reached sometimes weeks and months after the case first came under study.

The results of this investigation of the serologic diagnosis of syphilis by routinized blood testing procedure were a surprise to the investigators and involve conclusions of interest to all physicians called on to evaluate blood tests for syphilis in general, special and industrial practice, and they have significance for public health and venereal disease control officers employing serologic tests for case finding purposes ("Wassermann barbeque"). The conclusions are here summarized, with recommendations, the detail of methods being published elsewhere.

Between January and September 1944, 489 out of 210,261 Red Cross donor blood specimens gave definite positive reactions to serologic tests for syphilis. This incidence of 0 23 per cent positives is substantially below even the low reported prevalence rates for the disease (0.5 per cent) in the Northwestern and Northeastern rural sections of this country as disclosed by serologic surveys. Certain selective factors were suspected, to wit: No donors were under age 20, 40 per cent were over 40 years; they were predominantly white (only 2,579 Negro donors); there were more females than males; the persons included were probably above the average in responsibility and conscience, and known sick persons and those having syphilis outright were probably largely excluded.

In the process of evaluation described, a diagnosis of syphilis was reached in three months in 69.2 per cent; in nonspecific positive cases in only 22 per cent. Of the nonsyphilitic positive cases, 78 per cent required more than three months for decision.

Only 40.5 per cent of the Red Cross donors with syphilis positive bloods were finally adjudged actually to have syphilis. The remainder, 59.5 per cent, were finally adjudged to have actual or probable biologic false or nonspecific positive reactions.

The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and the University of Pennsylvania

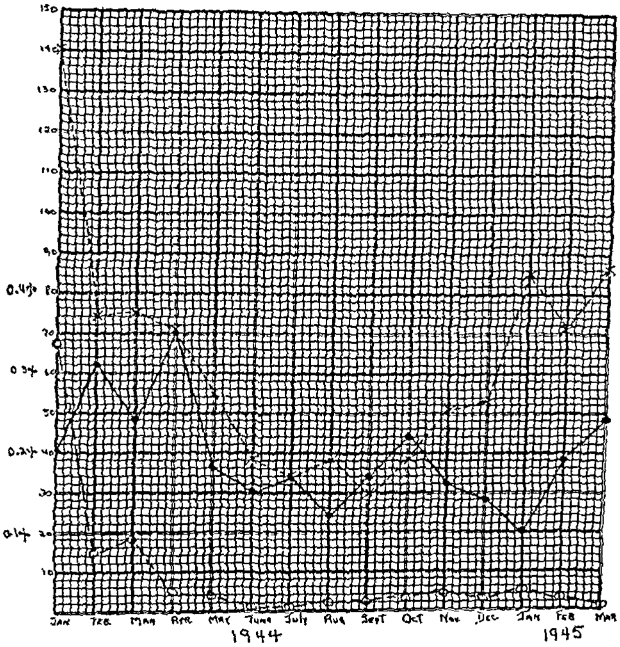
In addition to the responsible [illegible] participated actively in this study: Herman [illegible] R Ingraham Jr, M D, Louise E Tavs, M D, [illegible] D, Henry G. Morgan, Surgeon (R) U. S P [illegible], M D, Margaret J. Gerlach, M D, on behalf of the Institute for the Control of Syphilis; Verner Nisbet, M D, and Claude P Brown, M D, director and assistant director respectively, Pennsylvania State Laboratory, Philadelphia, and the United States Public Health Service Venereal Disease Research Laboratory, John F. Mahoney, medical director, United States Public Health Service, Staten Island, New York.

[1] This reviewing board, in addition to the responsible investigators, consisted of the collaborating clinicians and serologists enumerated in the title page footnote.

Among possible selective influences in the incidence of biologic false positive, that of season was suspected. Two recognized disease sources of nonspecific positives, pneumonia and other respiratory tract infections, are known sources of nonspecific positives. The accompanying chart shows a parallel tendency in the incidence curves of pneumonia (deaths) and the percentage (by months) of nonspecific positiveness. The influenza parallelism is less definite (no second peak). Allowance must be made in all estimates for the difficulty of making a "diagnosis" of nonspecific positive or "biologic false positive reactor" in any given case. Only 3 cases in the series were adjudged to be technical false positives.

THE CLINICAL HISTORY AND EXAMINATION

The clinician's history and examination of this group as a means of differentiating syphilis from nonsyphilitic was, in contrast to its usual claims to "court of last resort" status, disappointing. The final resort was perforce too often serologic. With respect to history, there was a slight preponderance of recent vaccination, upper respiratory infection, inoculations and recent febrile illness and infection in nonspecific positive cases. A significant clue was the preponderating "serologic discord" or history of conflicting serologic reports in nonspecific positives. A history of syphilis in the family or of primary and secondary manifestations in the patient was of little or no value.



Possible influence of season and epidemic infection on incidence of nonspecific positive blood tests. Broken line with x's, pneumonia death rate per hundred thousand, Middle Atlantic states; dashes with circles, influenza case rate per hundred [illegible] Middle Atlantic states; solid line with black dots, incidence of [illegible] ositive reports) in donated bloods (in percentage [illegible] that the peak of incidence of pneumonia deaths [illegible] (upper respiratory tract disease known or sus[illegible] "biologic false positives") corresponds fairly well to peaks [illegible] dence of nonspecific positives among Red Cross blood donors. There is even a one month lag, which has already been recognized as occurring in nonspecific positives due to respiratory tract disease.

In the physical examinatioin for "landmarks" of syphilis and "suspicion arousers," the yield of definitive findings was small, though better than from the history.

Not only were the symptoms and signs of the presence of syphilis equivocal, often unconvincing and hardly to be distinguished from signs and symptoms present in those ultimately adjudged after painful debate to be the victims of nonspecific positive serologic reaction, but sequences strongly supporting recognized causes of nonspecific positive reaction in accordance with our present knowledge of the subject were disappointingly few and far between.

The clinicians concerned, who had good reason to regard themselves as anything but "duds" in the field, soon learned the extent to which even experts may differ on points of physical examination particularly, involved, as suspicion arousers or diagnostic items, in the identification of syphilis. Opinion on the level of the liver, the presence or absence of true enlargement, the configuration of teeth and of bones, the shape and height of the palate, the interpretation of pupillary reactions and the interpretation of murmurs over the precordium were fertile fields of disagreement among both examiners and consultants.

In the physical examination, as might be expected, evidence for the presence of syphilis was found largely in examination of the eyes (including slit lamp study for vascularization of the corneas), characteristic teeth in congenital syphilis, the skeletal changes of congenital syphilis, the facies and the reflexes. It was quite characteristic of this investigation, as of private consultant practice at the present time, that congenital syphilis and neurosyphilis are the two chief clinical types uncovered by mass serologic testing.

SPECIAL STUDIES

The special studies made in response to apparent indications in the individual case (other than special serologic test procedures for syphilis) had a rather small positive yield. The high points are as follows:

Of 50 spinal fluids examined, 6 representing separate cases were abnormal.

Heterophile tests were performed a number of times in some cases.

In cases of syphilis none were over 1:112, 4 of 34 were suggestive (1:112), 12 per cent, and none were presumptive (1:224).

In nonspecific positive cases 11 of 58 were suggestive (1:112 and over), 19 per cent, and 6 of 58 were presumptive (1:224 and over), 10 per cent.

Radiographic examination of the chest showed abnormalities of some type in 12 of 41 cases, including 1 of active tuberculosis and 3 cases of pneumonitis; no virus pneumonia. Of 11 syphilitic cases examined, 3 showed abnormalities of the chest roentgenogram. Of 30 nonspecific positive cases examined, 9 showed abnormalities.

The special consultant on congenital stigmas identified 10 suggestive cases in 23 examinations. Only 6 such diagnoses (congenital syphilis) were finally accepted.

The special family study identified 1 syphilitic of 4; eye examination identified 4 syphilitic in 9 cases examined; the cardiovascular examination was suggestive in 3, and only 1 finally closed as syphilis.

The question as to whether every person who has a confirmed and persistent strongly positive serologic reaction should have a spinal fluid examination can, we feel, be answered with a qualified negative. If the course of the case under observation tends to support the suspicion that the serologic positive is syphilitic in origin, a spinal fluid examination is certainly indicated, but if the decline of the originally positive or doubtful blood to negative is reasonably prompt on weekly repetition, we feel that in the complete absence of clinical signs of syphilis the spinal fluid examination need not be insisted on. The yield of neurosyphilis in this material was small, hardly more than 10 per cent of the fluids examined being abnormal.

It is probable that, on the one hand, the infections of the nasorespiratory tract giving rise to nonspecific serologic reaction are either prostrating and severe and hence do not appear in this material at the time it comes in for examination or are perhaps minor affairs in predisposed reactors or the results of highly specific infection complications.

The identification of congenital syphilis by the special consultant has well illustrated the uncertainties which minor abnormalities of no primary significance in themselves but "uncomfortable" when viewed in the aggregate arouse as to the status of an individual with no other explanation for his serologic picture; they give rise to the suspicion that the patient may have a mild case of congenital infection late in its course toward spontaneous recovery. It may be said, however, that physicians can afford to familiarize themselves better with the typical mulberry or Moon molar, equally with the hutchinsonian incisor, for this is an important and often surprising aid in diagnosis. The proper lighting of the face for the interpretation of the facies and for the presence of rhagades is also important. The tibia, like the liver, is a field for chronic difference of opinion among "experts" in the borderline cases.

THE SEROLOGIC STUDIES

The Boerner classification procedure, devised for the purposes of this study, is essentially an interpretation of simultaneously performed, exceptionally sensitive tests for the detection of flocculating and complement fixing reagin. The details of the technic are in process of publication.[2]

In the system of classification employed in the Boerner procedure, those reported as giving serologic reactions in groups 3 and 4 are overwhelmingly likely to have syphilis; those consistently reported in groups 1 and 2 are very unlikely to have syphilis.

In the Boerner classification procedure a consistently high titer of reagin is maintained from beginning to end of the serologic investigation in the syphilitic, while in nonspecific (biologic false) positives a low titer is maintained consistently from start to finish in approximately the same proportion.

In appraising the multiple test "battery" as a checking procedure as carried out by Dr. Mahoney, an outright comparison of the Mazzini, Hinton, Eagle, Kline exclusion, Kline diagnostic, Kahn and Kolmer procedures cannot be offered.

The very high rating of the Mazzini test in the detection of syphilis and also that of the Kline exclusion test (of which it might, of course, be expected), and the Kahn, could be recognized. On the other hand, all of the precipitation tests run quite high in the proportion of strong positives and of strong and moderate positives obtained in nonspecific blood serums. The Kolmer complement fixation (as performed in Mahoney's laboratory), on the other hand, while less sensitive in the detection of syphilis, is a notably safer resort than any of the precipitation tests except the Kline diagnostic for the avoidance of strong positives in the nonspecific field. The performance of the Kline diagnostic test quite closely resembles that of the Kolmer. Broadly speaking, then, one would be inclined to infer that a precipitation test should either not be used or should be paralleled by a dependable and sensitive complement fixation procedure in any and every serologic survey of a mass material in which nonspecific positives may appear.

In a detailed comparison within the Boerner classification procedure, of both the Lund flocculation and the Boerner fixation of complement tests, it was even more clearly evident that a highly sensitive flocculation or precipitation test must not be used alone or as a screen procedure unless one wishes to have a harvest of nonspecific positives. This now inescapable fact is one to which authorities having power to select a syphilis blood testing procedure should pay heed. A test such as the Lund will, as compared with a complement fixation test such as the Boerner-Lukens, allow only 4 syphilitic persons to escape diagnosis to be sure, instead of 16; on the other hand, the price paid for this superior sensitivity is the difference between 123 nonspecific positives by flocculation and 44 by complement fixation; in other words, 79 persons "unjustly" suspected of having syphilis. The Boerner-Lukens fixation of complement procedure gives only 32 strong positive tests in the nonspecific group as against 93 with the Lund precipitation. When, however, the two procedures are combined for interpretation in accordance with the Boerner classification, the results are superior in accuracy and certainly in interpretability by the practitioner. As judged by all criteria, clinical and laboratory, in this study, syphilis can be separated from nonspecific positiveness with a high proportion of correctness by the Boerner classification. It is of course conceded that a specific test for syphilitic reagin or for the nonsyphilitic reagin, if such exists, would be more satisfactory and dependable, if and when such a procedure is devised. On the other hand, with the Boerner procedure in this material, only 29 of a total of 242 nonspecific tests yielded positive results, and 213 were negative or doubtful. Of the tests on the serums of persons diagnosed as syphilitic, 114 were positive and only 16 were negative or doubtful.

THE DECISION AS TO WHETHER OR NOT A PERSON HAS SYPHILIS

It will be apparent that within the field of this somewhat selected material this study does not solve all the difficulties intrinsic to both the identification and the exclusion of syphilis in any individual case. It indicates, however, quite clearly that a disconcerting proportion of the serologic crop obtained by a routine test procedure on a large scale sampling of blood in a population group will yield a high proportion of nonspecific positives. Unquestionably, large numbers of persons have, both before and during the era of the "serologic barbeque" been subjected to treatment for nonsyphilitic or, rather, nonexistent "syphilitic" infection. The validity of syphilis prevalence figures in current use, as obtained from the premarital and antepartum syphilis-uncovering programs, Selective Service serologic data and so on may perhaps require reexamination. While the diagnosis of syphilis by history and physical examination may be an important aid in the early outspoken manifestations of the infectious period of the disease, these aids lose much of their worth as the infection passes into latency and even into the period of late manifestations. The discouraged physician and even the clinical expert will therefore be forced to lean on serologic procedure for the identification of the disease. Our own study, for example, furnished us with repeated warnings and to some extent with evidence of the inevitability of this leaning on the serologic results for diagnosis in the absence of any other basis for diagnosis. The clinician may expect to identify, if he is sufficiently expert, indubitable symptoms and signs of the disease in a proportion of cases of seropositiveness dependent on the type of material with which he is dealing. Too often he will throw a weight of suspicion disappointingly small and based on slender and debatable evidence into the scales with the serologic test. He will not be able to diagnose syphilis by negative exclusion ("It's not anything else, so it must be syphilis"), that is, by failing to find a recognized cause for a nonspecific positive serologic reaction. At times he may even be compelled to "diagnose" syphilis and to advise its treatment for a patient who is so consistent a nonspecific positive reactor that one cannot trust the disproof of syphilis and must therefore consider it unsafe to believe that the person does not have the specific disease. With the advent of penicillin perhaps such diagnostic escapes will be too easily accepted and practiced.

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[2] Boerner, Fred: (1) A Quantitative Macro Flocculation Test for the Diagnosis of Syphilis; (2) A Quantitative Fixation of Complement Test for the Diagnosis of Syphilis, Echinococcus Disease, Malaria, Bacterial and Other Diseases; (3) A Method for Grouping and Classifying Serologic Reactions for Syphilis, to be published in the American Journal of Clinical Pathology and/or the Technical Supplement thereto.

The outright diagnosis of a nonspecific positive at the present time is laboratory rather than clinical—a consistent weak or doubtful positive reaction, its decline to negative within a "reasonable" time, currently estimated in the literature as approximately three months. A suggestion but certainly not a presumption in favor of nonspecific positiveness, in the majority of cases such as ours, may be raised by a record of intercurrent or recently antecedent infection, especially of the upper respiratory tract, accompanied by fever. The special test procedures to determine the character and location of such infection will usually be applied too late to be of material value in sustaining a diagnosis of nonspecific positive reaction. They therefore, at best, establish little more than a suspicion arousing type of reaction in the mind of the consultant, and the final decision again falls to the serologic test procedure and in the future, let us hope, to a specific physicochemical test for nonspecificity.

The serologic warnings of nonspecificity are again (1) consistent weak or doubtful positiveness, punctuated with occasional high titer precipitation reactions, (2) serologic fluctuation and discord, i. e. disagreement between tests and among laboratories, and (3) negative complement fixation with positive flocculation reaction. For the simplified and yet increasingly accurate differentiation of syphilitic from nonspecific positive serums on repeated testing, by a procedure easily available to well equipped serologic laboratories, this investigation offers the Boerner classification procedure as deserving of widespread trial even though it may presently be overtaken by a contribution from the physical chemists.

SOME PRINCIPLES SUGGESTED FOR ROUTINE BLOOD TESTING PROCEDURES

1. Mere routine blood serologic testing, without examination or questioning, will certainly lead to a proportion of nonspecific positives that will be expensive and serious for the individuals concerned and a source of error in statistical evaluation. The nonspecific positives obtained may run as high as 50 per cent, depending on the selection of case material, on the serologic procedures employed and on the rating given partial positives.

2. The best laboratories will give nonspecific positive serologic reports, but they will be fewer if a complement fixation technic is used and more easily interpreted if a quantitative precipitation test is matched against a quantitative fixation of complement test, as in the Boerner classification procedure.

3. The drawing of blood for serologic testing should be preceded or accompanied by:

(a) Questions:

Have you had or been treated for syphilis or gonorrhea?

Ask again and again.

Have you had malaria?

Have you had within a month a fever, cold, grip, pneumonia, severe sore throat?

Have you had any preventive inoculations within three months (tetanus, typhoid, smallpox vaccination)?

Have you had blood tests before? Results?

(b) At least a once over physical inspection:

Pupils.

Rashes (semistripped or stripped).

Oral mucosae and teeth.

Genitalia if possible or indicated.

Tibias.

Signs of intercurrent infection.

(c) Temperature, pulse, respiration. Auscultation of heart and lungs if above normal.

4. Nonspecific positives may be suspected if:

(a) There is a weak positive or doubtful serologic test result.

(b) There is a conflict between precipitation and complement fixation results.

(c) Even though a repetition is positive, the titer remains low and is fluctuant.

(d) There is a decline in titer to negative on weekly tests for one to three months, without treatment.

5. A syphilitic positive should be suspected if:

(a) The original and subsequent reaction are persistently of high or even low titer.

(b) The repetitions confirm each other over a three months period.

(c) There is clinical or anamnestic evidence of positive weight.

(d) The spinal fluid, after the aforementioned blood checks, is definitely abnormal, not alone with respect to serologic tests.

CONCLUSIONS

1. Examination of 210,261 Red Cross donor bloods disclosed 489, or 0.23 per cent, "unsatisfactory"—that is, seropositive in tests for syphilis (Kahn, Kolmer check).

2. Of 79 essentially unselected donors with positive serologic tests submitted to further extended clinical, serologic and other special studies, only 40.5 per cent were finally adjudged by a reviewing board to have syphilis.

3. The time required for a decision was less than three months in 69.2 per cent of the syphilitic, more than three months in 78 per cent of the nonspecific positives.

4. A suggestion of seasonal infection influence on seropositiveness appeared in the Red Cross material. Serologic surveys should be run in summer.

5. History and physical examination contributed little to differentiation of syphilitic and nonspecific positives.

6. Sharply defined clinical evidence supporting the nonspecific diagnosis is almost equally difficult to elicit.

7. Asymptomatic neurosyphilis and congenital syphilis were the two types of the disease, other than monosymptomatic seropositive latency, uncovered.

8. The detection of previously undiagnosed syphilis, now latent, in present knowledge is inevitably serologic.

9. Precipitation tests tend to be unreliable unless matched against complement fixation tests.

10. The syphilitic positive is a high titer, consistent positive on multiple repetition, precipitation and complement fixation confirming each other.

11. The nonspecific test is of low reagin titer, usually weak positive or doubtful but fluctuant, sometimes with strong positives; inconsistent as between precipitation and complement fixation, tending to be more positive in the former than the latter; tending toward negative within a three months period on weekly repetition.

12. The Boerner classification procedure offers an accessible method of interpreting serologic reactions.

13. Doubtful cases should be kept under prolonged observation. Even at the end of a year the diagnosis may still be undetermined.

ALKALI TREATMENT OF METHYL ALCOHOL POISONING

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For sixty years methyl alcohol has been recognized as a poison causing either death or blindness in a large percentage of cases. Recently we had under our care two groups of patients totaling 31 who had partaken of mixtures containing methyl alcohol and who showed clinical evidence of methyl alcohol poisoning. Of this group 5 died within three hours after admission to the hospital. The rest recovered and were returned to duty. It is our purpose to present the clinical and pathologic data found in this group and to demonstrate the value of the use of alkali therapy in the treatment of methyl alcohol poisoning.

In 1880 methyl alcohol was found to be toxic regardless of the port of entry, including the skin. The amount of methyl alcohol necessary to poison was found to vary considerably, depending on the tolerance of the individual. One man drank 1 pint of 10 per cent mixture daily without producing ill effects.[1] A single 4 cc. dose of methyl alcohol was a toxic dose in another instance.[2] It is recorded that 10 cc.,[3] 30 to 60 cc. and 180 to 240 cc. repeatedly caused death.[4] On the other hand much larger amounts have been taken without causing temporary or permanent injury.

It is commonly considered that methyl alcohol has a predilection for the retina and optic nerves. Degeneration takes place in the ganglion cells of the retina as well as nerve tissue elsewhere in the central nervous system. With this there is engorgement of the capillaries and edema. Furthermore, it has been shown both by postmortem and by experimental studies that methyl alcohol may cause acute parenchymatous degeneration of the kidneys, liver, heart and other organs.

The action of methyl alcohol, although slower, resembles ethyl alcohol in that it can produce intoxication. Ethyl alcohol is oxidized readily and excreted within twenty-four hours, whereas methyl alcohol may be present in the system for days. Methyl alcohol is not fully oxidized in the body but is broken down into formic acid and formaldehyde. Formic acid has been found in abnormal amounts eight days after ingestion[5] of methyl alcohol. Experimentally, formates were found in the urine of dogs five to six days after the administration of methyl alcohol. The intoxication upsets metabolism so that excessive amounts of lactic and other organic acids are excreted in the urine for days.[6] This disturbance commonly results in a profound acidosis which has long been recognized but not fully appreciated.[7]

The symptoms of methyl alcohol intoxication are usually delayed for nine to thirty-six hours, during which time an individual may continue to carry on. Suddenly weakness, headache, nausea and epigastric distress may appear, associated with dimness of vision. Blindness may follow rapidly, with an increase in the gravity of the condition. Within a few hours, dyspnea of the Kussmaul type and cyanosis may appear, resulting in death within an hour or so. If death does not supervene, coma may last for several days before improvement occurs. Permanent blindness is then a frequent result.

The diagnosis is usually made on the presence of a toxic state following ingestion of an alcoholic beverage, or other exposure to methyl alcohol, in which impairment of vision exists with dilatation of the pupils. Methyl alcohol and its derivatives can be found in the urine or gastric contents in abnormal amounts.

The treatment has consisted for the most part in the administration of fluids, gastric lavage and purgatives. The profound acidosis present in methyl alcohol poisoning prompts some to administer alkali with good results[8] That this treatment is successful is amply substantiated by our results.

CLINICAL DATA

Table 1 presents clinical data on each of the 26 patients who recovered. The estimated maximum amount of methyl alcohol ingested was 540 cc. The minimum was 90 cc. The average amount was 222 cc. In addition many also drank beer in amounts ranging from none to 21 cans.

The symptoms of intoxication came on in about one hour in 1 case, while they did not appear for about forty hours in another. The average time from the first ingestion of methyl alcohol until the appearance of symptoms of intoxication was fifteen hours. Nausea, vomiting and abdominal cramps commonly occurred. The pupils of many were dilated. Fifteen patients reported blurring and dimness of vision. Several of these patients also had yellow vision. Eighteen had definite ophthalmoscopic findings in the fundus. This was chiefly congestion of the optic disk, and edema of the disk and the immediately adjacent zone of the retina. It is also noteworthy that 8 of the patients who had no visual symptoms did have objective changes in the ocular fundi. Mental symptoms such as dizziness and amnesia were commonly present. One patient was in coma about twelve hours yet lived. Those who were severely ill had dyspnea of the Kussmaul type. The respirations of the patients who died became rapid and shallow as coma deepened, with intense cyanosis, ending in respiratory failure. Treatment was instituted in our series of cases from eleven to thirty-seven hours after the first ingestion of methyl alcohol. The average time interval was twenty-seven hours.

Table 2 presents data regarding the carbon dioxide combining power of the plasma in 26 cases and data regarding treatment. The carbon dioxide combining

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A preliminary report appeared in the Pacific Fleet Medical News **1**: 1-5 (May) 1945.

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power was diminished in all but 1 instance. The highest value on admission was 55, the lowest 12 and the average 26 volumes per cent. There was no correlation between the value of the carbon dioxide combining power and the amount of methyl alcohol ingested. Two patients had values of 12 volumes per cent. One had taken about 360 cc. of alcohol; the other had taken but 12 cc. As expected, those whose clinical condition was the worst had the lowest levels of alkali reserve and vice versa. Dyspnea was observed chiefly in those in whom acidosis was most pronounced.

Treatment was directed primarily toward overcoming the acidosis. Alkali was given intravenously in the form of ⅙ molar sodium r-lactate in isotonic solution of three chlorides. The amount given was guided by repeated plasma bicarbonate determination in conjunction with clinical indications. None was given in a few cases, while as much as 640 cc. of molar sodium r-lactate solution was given in another, within the first twenty-four hours. The average amount given during the first twenty-four hours was 291 cc. In addition, sodium bicarbonate was given by mouth or by gavage, starting with a dosage of 4 Gm. every fifteen minutes. The total amounts of sodium bicarbonate administered during the first twenty-four hours varied from 12 to 100 Gm. The average amount was 51.6 Gm. The total alkali administered both intravenously and by mouth during the first twenty-four hours varied between 16 and 140 Gm., calculated as sodium bicarbonate. The average was 73.8 Gm. There was a rough correlation between the original level of the carbon dioxide combining power of the blood and the amount of alkali given during the first twenty-four hours. In addition, fluids were forced by mouth.

Whisky was given in 1 ounce doses (30 cc.) every four hours for a day or two. The eyes were protected from the light.

The response to treatment was prompt in most cases, as indicated by both clinical and laboratory criteria. Within a few hours dyspnea, nausea, cramps and mental symptoms abated and there was a progressive rise of plasma bicarbonate. It was not possible to determine the plasma bicarbonate at short intervals throughout the period of treatment on this large group of patients. However, in none of the cases was the carbon dioxide combining power below 35 volumes per cent, fourteen hours after treatment was started.

The improvement of eye changes under this treatment was particularly gratifying. Within twenty-four hours subjective blurring of vision had cleared in many of the cases. Notable diminution of congestion and edema of the optic disk and retina occurred within two to three days. At the time of discharge from the hospital, which averaged two weeks, all but 4 patients had central vision as good as that previously recorded in their health records, and their fundi appeared normal. These 4 showed a slight degree of retinal edema and had a slight diminution of central vision, insufficient to interfere with their duties. They also had contraction of the peripheral fields of vision and 1 had a large cecocentral scotoma in each eye. In the three months since discharge 2 of these 4 patients have regained apparently normal vision and fundi. Both of the others have some pallor of the temporal sides of the disks. One has concentric contraction of the visual fields and the other still has large cecocentral scotomas which have not changed since his discharge from the hospital. Central vision is not seriously affected in either case.

Table 1.—*Amounts of Alcohol Drunk, Major Symptoms and Eye Signs, and Intervals Elapsing to Onset of Symptoms and Entry to Hospital in Twenty-Six Cases of Methyl Alcohol Poisoning*

	Estimated Intake of		Interval Between Drinking and			Eye Changes Noted †	
Case	Methyl Alcohol, Cc.	Other Alcoholic Beverages	Onset of Symptoms, Hrs.	Entry to Hospital, Hrs.	Symptoms *	On Entry	On Discharge
1	540	2 cans beer	3	36	N, C, V, M	None	None
2	450	18 cans beer	20	36	N, C. V. M	None	None
3	360	3 cans beer	14	23	N. M	None	None
4	180	6 cans beer	12	23	N	None	None
5	150	0 cans beer	16	20	N, V	None	None
6	120	6 cans beer	17	20	N, V, M	E+, D+	None
7	210	12 cans beer	6	24	V, M	E+, D+	None
8	180	8 cans beer	10	35	N, V, M	None	None
9	180	10 cans beer	1	22	C, M	E+, D	None
10	150	0 cans beer	2	19	N, M	E+, D	None
11	90	3 cans beer	11	36	V, M	E+	None
12	180	8 cans beer	34	55	C, M	E+	None
13	300	2 cans beer	4	21	N, V, M	E+ +	None
14	180	10 cans beer	23	23	N, M	E+	None
15	150	21 cans beer	40	36	N	E+, D+	None
16	240	15 cans beer	?	19	N	E+, D+	None
17	300	0 cans beer	13	28	N, C, V, M	E+, D+	E
18	240	0 cans beer	None	37	None	E±	None
19	240	0 cans beer	21	24	V	E+	None
20	240	1 can beer	12	36	V, M	E+, D+	None
21	240	10 cans beer	10	13	N, C, V, M	None	None
22	150	4 rum cokes	24	39	N, V	E++++, D++, E+	Scotoma, atrophy
23	120	14 cans beer	14	16	M	E+, D+	E+, contracted fields
24	120	0 cans beer	7	11	V	E+	None
25	120	0 cans beer	None	30	C, M	None	E+
26	90	0 cans beer	32	37	V, M	E++	
Average	222		15	27			
Range	90-540		1-40	11-37			

* N, nausea; C, abdominal cramps; V, visual disturbance; M, mental symptoms (amnesia, unconsciousness).
† E, circumpapillary and papillary edema; D, decreased central vision.

REPORT ON FIVE DEATHS

There were five deaths. Four of these men were comatose and critically ill on admission to the hospital. One was conscious but lapsed into coma very shortly. They all were intensely cyanotic and had pronounced respiratory embarrassment. Response to therapy was nil and they died in respiratory failure within three hours after admission. In each case heart action persisted for some time after respirations ceased.

Necropsies were performed in all 5 cases approximately forty-eight hours after death.

On inspection a characteristic pinkish red postmortem lividity was consistently present in all cases, involving chiefly the face, neck, shoulders, abdomen and thighs. This was probably due to the presence of an alteration product of hemoglobin similar to carboxyhemoglobin (HbCO) or methylhemoglobin ($HbCH_3$). There was cyanosis of the fingers and finger nails in all cases.

Cranial Cavity.—In all cases there was hyperemia of the pia-arachnoid but only a moderate accumulation of spinal fluid in the subarachnoid space. The brains weighed between 1,430 and 1,570 Gm., averaging 1,490 Gm., which represents an average increase of at least 100 Gm. above the usual brain weight. The ventricles were normal. and there were no parenchymal lesions. Microscopically there was evidence of cerebral edema in the form of widening of the perivascular and perineuronal spaces, loosening of the brain substance generally and swelling of glial cells. There was no evidence of hemorrhage or devastation necrosis.

Thoracic Cavity.—There was no accumulation of fluid in the pleural cavities in any case. All mediastinal structures were normal. There was moderate to severe hypostatic congestion of the lungs in all cases, and the weight of the lungs varied from 700 to 1,100 Gm.

Cardiovascular System.—The heart and great blood vessels were essentially normal in each case. The blood was uniformrly unclotted but was dark colored and not cherry red as it is sometimes described in this type of case.

Abdominal Cavity.—There was no increase of peritoneal fluid. All peritoneal surfaces were normal, and all abdominal organs appeared normal. The livers were uniformly paler than normal and weighed between 1,580 and 2,030 Gm., the average being 1,710 Gm., constituting some fatty infiltration in the form of small droplets; changes usually attributed to anoxia were present. Necrosis was not observed. The gastric contents were fluid and possessed no significant odor. The mucosa was hyperemic in all cases but 1. Other abdominal organs were normal.

Adrenals.—There was no necrosis or hemorrhage.

Urogenital System.—The kidneys were essentially normal except for moderate passive congestion. The urinary bladder in each case was normal except for mild mucosal hyperemia.

Anatomic Summary.—Examination revealed (1) cerebral edema, (2) hypostatic pulmonary congestion, (3) fatty infiltration of the liver and (4) passive congestion of all organs.

Toxicologic Examination.—Through the courtesy of Lieut. Comdr. L. J. Goldwater (MC), U.S.N.R., officer in charge of the Industrial Health Laboratory, Navy number 128, the following chemical examinations were performed:

Specimens of brain tissue were removed in each necropsy. Their methyl alcohol content ranged between 9.7 and 1.5 per cent by weight—sufficient in all cases to cause death.

A sample of fluid submitted and labeled "from bottle or canteen in barracks D" was found to be composed of practically pure methyl alcohol.

COMMENT

This group of cases demonstrates that the individual susceptibility to methyl alcohol varies considerably. There was no correlation between the amount ingested and the clinical picture, the eye changes or the level of the plasma carbon dioxide combining power.

It is important to appreciate that the action of methyl alcohol is slow. It produces a profound alteration in metabolism resulting in acidosis. Methanol or its products are not selective in their action, i. e., on the optic nerve, but affect many vital organs.

The treatment of this acidosis by sodium bicarbonate has been reported before; however, its importance has not been fully appreciated. Recently 2 men were admitted to this hospital who were in a party of 4 who drank "Ditto fluid" containing methyl alcohol about three weeks previously. Two had died. The remaining 2 have very little vision as the result of atrophy of the optic nerve. No alkali therapy was given, according to their records.

TABLE 2.—*Amounts of Alcohol Ingested, Degree of Acidosis and Amounts of Alkalis Used During First Twenty-Four Hours of Treatment in Twenty-Six Cases of Methyl Alcohol Poisoning*

Case	Estimated Intake of Methyl Alcohol, Cc.	Lowest CO_2 Combining Power Noted, Vol. %	Amount of Sodium Lactate Given Intravenously, Cc. of 1 Molar Solution	Amount of Sodium Bicarbonate Given by Mouth, Gm.	Total Amount of Alkali Given in 24 Hours Calculated as Sodium Bicarbonate, Gm.
1	540	39	400	48	82
2	450	25	40	92	95
3	360	25	0	28	28
4	180	29	0	80	83
5	150	20	200	60	77
6	120	25	200	20	37
7	210	25	400	32	66
8	180	55	160	20	33
9	180	32	200	20	37
10	150	20	600	36	86
11	90	..	40	72	75
12	180	..	40	80	83
13	300	22	400	24	58
14	180	33	0	24	24
15	150	33	200	12	29
16	240	26	200	40	57
17	300	12	480	52	92
18	240	22	0	70	70
19	240	14	320	86	113
20	240	24	640	100	154
21	240	28	160	60	73
22	150	21	640	86	140
23	120	28	320	48	75
24	120	12	320	86	113
25	120	..	0	16	16
26	90	21	480	50	90
Average	222	26	291	51.6	73.8
Range	90-540	12-55	0-640	12-100	16-140

Whisky was given to our patients because Røe[9] expressed the opinion that ethyl alcohol promotes the displacement of methyl alcohol from its intracellular attachments and therefore was considered beneficial in the early treatment of methyl alcohol poisoning. There was no correlation between the relative amount of beer or whisky ingested and the clinical condition of our cases, or their response to treatment.

TREATMENT

In view of the excellent results effected in our cases, the following treatment is recommended for methyl alcohol poisoning. When the patient is in shock and respiratory failure is imminent, nikethamide intravenously and oxygen in addition to the other general measures should be used. Immediate application of treatment is necessary, may be life saving and may prevent irreparable visual damage. Prompt elimination of the acidosis, we feel, is essential in the treatment of methyl alcohol poisoning.

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[9] Røe, O.: Clinical Investigations of Methyl Alcohol Poisoning, with Special Reference to Pathogenesis and Treatment of Amblyopia, Acta med. Scandinav. **113:** 558-608, 1943.

1. Draw blood for the plasma carbon dioxide combining power. The plasma carbon dioxide may be down to 10 volumes per cent.

2. Then administer alkali immediately as follows:

(a) Put four 40 cc. ampules of sodium r-lactate molar solution into 1 liter of isotonic solution of three chlorides and give intravenously.[10]

(b) Give 4 Gm. of sodium bicarbonate by mouth every fifteen minutes for four doses. If the patient is comatose, give it by a stomach tube.

3. Following administration of the aforementioned amount of alkali, recheck the plasma bicarbonate. Then immediately repeat the administration of the sodium r-lactate isotonic solution of three chlorides and the sodium bicarbonate by mouth as outlined. It has been our experience that the course of alkali outlined will have to be repeated three or four times consecutively to result in the elevation of the plasma carbon dioxide combining power from 10 to 20 volumes per cent to 40 to 50 volumes per cent. When this point is reached it may be checked twice daily until recovery is complete. If facilities are not available for the estimation of plasma bicarbonate, the reaction of the urine may be used as a guide to the administration of alkali. In our cases we used this reaction to regulate the continued administration of sodium bicarbonate after the plasma bicarbonate had returned to nearly normal values. At that time we tested each voiding of urine and gave 2 Gm. of sodium bicarbonate each hour while the urine was below a p_H of 7.0. The same dose was given every two hours when the urine reached a p_H of 7.0. When the urine became alkaline to phenolsulfonphthalein (p_H 7.8) the administration of soda was suspended. This scheme was continued for four or five days.

4. It is important to keep the eyes covered until all visual and retinal changes have disappeared.

CONCLUSION

The essential principle in the treatment of these cases was the correction of acidosis.

Twenty-six patients recovered and were returned to duty. All but 4 had complete restoration of vision at the time of discharge from the hospital.

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[10] If sodium lactate solution is not immediately available, 5 per cent sodium bicarbonate freshly and properly prepared for intravenous use may be given in doses of 250 cc This amount of alkali is equivalent to four ampules of the molar sodium r lactate solution The lactate solution is preferable, however, since it yields the sodium ion more slowly into the system and thereby lessens the possibility of an uncompensated alkalosis

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Extradural Hemorrhage.—A finding of value in the diagnosis and localization of an extradural hemorrhage is a dilated pupil which does not react to light or accommodation. This dilated fixed (Hutchinson's) pupil, with or without other signs of paralysis of the third nerve, is always on the same side as the clot and it is due to compression of the third nerve by the hippocampal gyrus, which has been herniated over the free edge of the tentorium. This herniation can readily be demonstrated at necropsy and has been experimentally produced by Cone and Reid It must be remembered that mere inequality of pupils or a dilated pupil which reacts to light has no localizing value.—Merritt, H. Houston: Diagnostic Considerations in Patients with Head Injury, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

THE IN VITRO ACTION OF STREPTOMYCIN ON BACTERIA

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Streptomycin is effective against a variety of gram negative and gram positive bacteria both in vivo and in vitro.[1] However, its rational use in the treatment of disease must be preceded by an evaluation of dose intervals and sizes with a determination of bacterial susceptibility to its action. There are definite in vitro differences in the sensitivity of bacteria to streptomycin and within a given species strains may be found varying from extreme susceptibility to high resistance. As the blood concentration of streptomycin reaches a peak shortly after parenteral injection and then gradually falls to zero[2] it becomes necessary, for rational therapy, to determine whether a sufficiently high blood concentration is being maintained with reference to the sensitivity of the bacteria isolated from the patient. In many cases it may be found that a smaller dose or a longer interval between doses is sufficient to maintain a blood concentration which is more than ample to inhibit the in vitro growth of the invading bacterium. On the other hand, blood level and sensitivity determinations may indicate that a larger dose given at more frequent intervals is needed.

Our purpose in this communication is to report (1) the sensitivities of several species of bacteria to streptomycin, (2) to correlate these sensitivities with the serum concentrations of streptomycin that may be maintained in patients receiving the drug and (3) to determine whether the bacteria investigated developed a resistance to streptomycin in vivo.

SOURCES OF THE BACTERIA INVESTIGATED

The bacteria studied were isolated from 38 patients with various types of infections, among which were peritonitis, thoracic empyema, septicemia, infected wounds and burns, urinary tract infections and pelvic abscesses. Urine or pus from each case was cultured before and at intervals during streptomycin treatment and the organisms present were isolated in pure culture. Complete identification of all bacteria was not made, this being limited to Proteus vulgaris, Escherichia coli, Aerobacter aerogenes, Pseudomonas aeruginosa, alpha and beta hemolytic streptococci and the staphylococci. Other organisms were grouped according to their

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This work was supported by grants from Merck and Company, Inc, Rahway, N. J, and from the Theodore A McGraw Fund

[1] Feldman, W H, and Hinshaw, H. C: Effects of Streptomycin on Experimental Tuberculosis in Guinea Pigs. A Preliminary Report, Proc Staff Meet, Mayo Clin **19:** 593 599, 1944 Heilman, F. R.: Streptomycin in the Treatment of Experimental Tularemia, ibid **19:** 553 559, 1944, Streptomycin in the Treatment of Experimental Infections with Micro-Organisms of the Friedlander Group (Klebsiella), ibid **20:** 33 39, 1945 Jones, Doris; Metzger, H J.; Schatz, Albert, and Waksman, S A · Control of Gram Negat Animals by Streptomycin, Science **100:** 1 J, Smith, Dorothy G, and Graessle, O E of Strepto mycin, Proc Soc Exper Bio 4 Schatz, Albert; Bugie, Elizabeth, and cin, a Substance Exhibiting Antibiotic Activity Against Gram Positive and Gram Negative Bacteria, ibid **55:** 66-69, 1944 Schatz, Albert, and Waksman, S. A: Effect of Streptomycin and Other Antibiotic Substances on Mycobacterium Tuberculosis and Related Organisms, ibid **57:** 244 248, 1944 Waksman, S A; Bugie, Elizabeth, and Schatz, Albert· Isolation of Antibiotic Substances from Soil Micro-Organisms, with Special Reference to Streptothricin and Streptomycin, Proc Staff Meet, Mayo Clin **19:** 537 548, 1944

[2] Buggs, C W.; Pilling, M A; Bronstein, Bernice, and Hirshfeld, J. W. The Absorption, Distribution and Excretion of Streptomycin in Man, J. Clin Investigation, to be published

morphology, gram staining reaction and oxygen requirement. After the aerobes were obtained in pure culture they were screened for their sensitivity to streptomycin, following which their sensitivity over a narrower range was determined. The action of streptomycin on the anaerobes was not tested.

SCREENING FOR THE APPROXIMATE SENSITIVITY TO STREPTOMYCIN

An aqueous solution of streptomycin [3] having a concentration of 448 S [4] units was prepared from a weighed amount of the dry product. Twofold serial dilutions of this solution were made in nutrient broth, using 0.4 cc. of the streptomycin solution. The dilution was carried through thirteen tubes. An inoculum of 0.3 cc. of a 1 : 10,000 dilution of an eighteen to twenty-four hour culture of the test organism was now added to each tube, as well as to a control tube and a tube which contained 0.4 cc. of undiluted streptomycin solution. The final dilutions of the streptomycin gave concentrations ranging from 256 units to 0.03 unit. The tubes were incubated for eighteen to twenty-four hours and read on the basis of the presence or absence of turbidity.

If more than 2 units of streptomycin was required to inhibit growth, the bacterium was retested in a series of tubes containing gradually increasing concentrations of streptomycin in order to arrive at a closer approximation of the organism's sensitivity. This additional step was taken because of the 100 per cent error inherent in the twofold serial dilution method.

DETERMINATION OF SENSITIVITY VALUES WITHIN NARROWER RANGES THAN THOSE POSSIBLE WITH THE TWOFOLD SERIAL DILUTION METHOD

Various concentrations of streptomycin solutions were prepared in double the desired strength and added in 0.5 cc. amounts to 0.5 cc. of double strength nutrient broth which contained from 1,000 to 10,000 of the test bacteria per cubic centimeter. If the screen test of an organism showed its sensitivity to be 4 S units, it was retested with individual solutions of streptomycin containing from 1 to 8 units in steps of 1 unit of streptomycin per cubic centimeter. In like manner, organisms with screened sensitivities of 8, 16, 32 and 64 units were retested in various concentrations of streptomycin as given in table 1. Column 3 of this table gives the concentrations of streptomycin to which the organisms were exposed and the range of error which may occur in the end point. Organisms which were sensitive to 128 or 256 units in the screen test were not retested except in a few isolated instances.

RESULTS OF SENSITIVITY TESTS

The sensitivity to streptomycin of bacteria that were studied is given in table 2. These values may be compared with the serum concentrations of streptomycin in patients following the intramuscular or intravenous injection of streptomycin ranging from 25,000 to 1,000,000 S units which were reported by Buggs, Pilling, Bronstein and Hirshfeld,[2] who found that 500,000 S units of streptomycin administered intramuscularly or intravenously was sufficient to maintain a serum concentration which was at a level of 10 to 15 units at the end of four hours. Theoretically, then, all bacteria reported in this paper with a sensitivity of 8 units or less would be inhibited over a period of at least four hours by a parenteral injection of 500,000 S units of streptomycin.

Escherichia Coli.—Nineteen of 26 strains of Escherichia coli, 73 per cent, were found to be sensitive to a concentration of 8 units or less of streptomycin. Six of the strains were inhibited by concentrations of streptomycin between 12 and 32 units, while only one strain had a resistance greater than 256 units. The latter strain was isolated from the urine of a patient before streptomycin therapy was begun and may be assumed to have been naturally resistant. Four of the twenty-six strains were isolated from 1 patient and three strains from another, but in neither of these cases did the organism acquire an increased tolerance for streptomycin during therapy.

TABLE 1.—*Solutions Used for Sensitivity Tests and the End Points as Read from Individual Tubes*

Screened Sensitivity, S Units/Cc.	Solutions Used for Further Tests, S Units/Cc.	End Points as Read from Individual Tubes, S Units/Cc.	Error
4	2	1	0
	4	2	
	6	3	
	8	4	
	10	5	
	12	6	
	14	7	
	16	8	
8	8	4	—1 unit
	12	6	
	16	8	
	20	10	
	24	12	
	28	14	
	32	16	
16	16	8	—1 to —3 units
	24	12	
	32	16	
	40	20	
	48	24	
	56	28	
	64	32	
32	32	16	—1 to —7 units
	48	24	
	64	32	
	80	40	
	96	48	
	112	56	
	128	64	
64	64	32	—1 to —15 units
	96	48	
	128	64	
	160	80	
	192	96	
	224	112	
	256	128	

Proteus Vulgaris.—Six strains of Proteus vulgaris which were isolated from 2 patients were found to be sensitive to streptomycin, a concentration of 8 units or less being sufficient to inhibit the in vitro growth of all of them. Five of the strains were isolated during a twelve day period from an abdominal abscess of 1 of the 2 patients. Originally the organism was sensitive to 2 units of streptomycin, but after twelve days of therapy it required 8 units to inhibit its growth. In this instance Proteus vulgaris probably developed a tolerance for streptomycin. The increase in resistance, however, is not beyond the blood concentration of streptomycin that may be maintained over a period of at least four hours in a patient who has received 500,000 S units of the drug, either intramuscularly or intravenously.

Pseudomonas Aeruginosa.—The majority of the strains of Pseudomonas aeruginosa were very resistant to streptomycin, and in 2 instances it appeared that the organism developed an increased tolerance for the drug during therapy. In 1 case the resistance of the organism as recovered from bile before treatment was started was

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[3] The streptomycin was provided through Dr. D. F. Robertson of Merck and Company, Inc., Rahway, N. J.

[4] An S unit of streptomycin, synonymous with an E. coli unit, is that amount of streptomycin which will inhibit the growth of a standard strain of E. coli in 1 cc. of nutrient broth or other suitable medium.

32 units of streptomycin. Three days later, when the organism was again isolated, its resistance had increased to more than 256 units. In the second case Pseudomonas aeruginosa was isolated from an infected ankle. It was sensitive to 20 units of streptomycin. Seven days later a reisolation of this organism was made. It now had a resistance greater than 256 units.

Of the nineteen strains of Pseudomonas aeruginosa reported in table 2, only five of them, 26 per cent, were sensitive to 8 units or less of streptomycin on primary isolation. The remaining fourteen strains required from 16 to more than 256 units for in vitro inhibition.

Table 2.—*Sensitivities of Bacteria to Streptomycin*

Determinations made in nutrient broth which contained 0.25 per cent sodium chloride

Organism and Sensitivity, S Units/Cc.	Number of Strains	Organism and Sensitivity, S Units/Cc.	Number of Strains	Organism and Sensitivity, S Units/Cc.	Number of Strains
E. coli from 21 Patients		A. aerogenes from 13 Patients		Alpha hemolytic streptococci from 18 Patients	
1	5	1	2	0.06	1
2	1	2	6	0.5	1
4	4	3	3	1	2
5	4	4	1	2	2
6	3	5	4	4	5
8	2	6	1	5	3
12	1	16	1	6	5
16	2	20	1	8	7
32	3	>256	1	16	3
>256	1		20	32	2
	26	S. aureus from 14 Patients		>256	6
		0.03	3		37
P. vulgaris *from 2* Patients		0.06	2	Beta hemolytic streptococci from 10 Patients	
2	1	0.125	2	0.06	2
4	2	0.5	1	0.125	1
6	1	1	4	1	1
8	2	2	5	4	2
	6	3	1	5	3
		4	2	8	2
		5	1	32	2
		6	1	>256	2
Ps. aeruginosa from 13 Patients		16	1		15
1	1	32	1	Diphtheroids *from 19* Patients	
4	2	128	1	0.03	1
5	1	>256	2	0.06	3
8	1		27	0.125	7
16	1	S. albus from 12 Patients		0.25	2
32	1	0.03	1	0.5	3
40	2	0.06	7	1	1
100	1	0.125	6	7	1
>256	9	0.25	5	256	6
	19	1	2	>256	12
		128	1		36
		>256	4		
			26		

Aerobacter Aerogenes.—Seventeen of the twenty strains studied, 85 per cent, were sensitive to concentrations of streptomycin well within ranges that may be obtained in blood, only three of them requiring more than 6 units for the complete inhibition of growth. The one strain with a resistance greater than 256 units was the second isolation of this organism from the urine of a patient under treatment with streptomycin. When first isolated, nine days previously and two days after therapy was begun, the organism was inhibited by 1 unit of streptomycin. It would thus appear that this strain developed a decided resistance to streptomycin during its eleven days' exposure to the drug. The two strains with sensitivities of 16 and 20 units of streptomycin were primary isolations from 2 patients a few days after therapy was begun. They may have developed an increased tolerance for the drug during this period of therapy.

Staphylococci.—The vast majority of the staphylococci studied proved to be very sensitive to streptomycin, many of them being inhibited by less than 0.1 unit of the drug.

Twenty-seven strains of Staphylococcus aureus were tested. Twenty-two of these strains, or 81 per cent, were sensitive to 6 units or less of streptomycin when first isolated, and only one of the twenty-six strains presumably developed a tolerance for the drug during the course of treatment. One of the two strains requiring more than 256 units of streptomycin for inhibition was a primary isolation from a case of osteomyelitis after six days of therapy. The second of these two strains was isolated from an infected decubitus ulcer which was treated locally and parenterally with streptomycin. When first isolated this organism was sensitive to 6 units of streptomycin. On the second isolation, six days later, the sensitivity was 128 units. After three additional days of exposure to the drug the organism was able to tolerate 256 units of streptomycin.

Twenty-one of 26 strains of Staphylococcus albus, 81 per cent, were sensitive to 1 unit or less of streptomycin. In 1 instance a strain apparently developed a tolerance for the drug during thirteen days of therapy. When first isolated its sensitivity was 0.06 unit, but thirteen days later, and on two additional occasions, the resistance of the organism as isolated from the same patient was greater than 256 units. The fourth strain reported with a resistance greater than 256 units was a primary isolation following six days of therapy.

Thirteen additional strains of micrococci were tested for their sensitivity to streptomycin. These were identified as Staphylococcus epidermidis, Micrococcus candidus and Micrococcus aurantiacus. Eleven of the thirteen strains, or 85 per cent, were sensitive to 2 units or less of streptomycin.

Alpha Hemolytic Streptococci.—Thirty-seven isolations of alpha hemolytic streptococci were made from 18 patients during their course of treatment with streptomycin. Twenty-six of the strains, or 70 per cent, were sensitive to 8 units or less of streptomycin. The remaining eleven strains required 16 or more units for inhibition. In 2 instances it appeared that alpha hemolytic streptococci developed a tolerance for the drug. In a case of urinary tract infection this organism was isolated from urine on five different occasions during a period of nine days. The sensitivities were 1, 2, 4, 8 and 256 units of streptomycin. The second instance in which an alpha hemolytic streptococcus developed an increasing tolerance for streptomycin occurred with a strain isolated from a gunshot wound. Its sensitivity on primary isolation was 16 units, but twenty-seven days later when reisolated from the wound it grew very well in the presence of 256 units of streptomycin. The remaining four strains, resistant to 256 units of streptomycin, were primary isolations before therapy was begun.

Beta Hemolytic Streptococci.—Eleven of fifteen strains of beta hemolytic streptococci, or 73 per cent, were found to be sensitive to 8 units or less of streptomycin. Two strains with a sensitivity of 32 units were isolated from 1 patient before therapy was begun, and two strains that were resistant to more than 256 units were isolated from another patient twenty-one and twenty-eight days after therapy had been started. These strains may have become resistant during the course of therapy.

Diphtheroids.—The diphtheroids were found to be either extremely sensitive or very resistant to streptomycin. Thirty-six strains were isolated from 19 persons. Seventeen of these strains were sensitive to 1 unit or less of streptomycin, one required 7 units for inhibition, 6 required 256 units and 12 strains were not inhibited by 256 units of the drug. No attempt was made to identify these organisms as to species, but on two different occasions diphtheroids with a great tolerance for streptomycin were isolated from lesions which, on an earlier date, had yielded diphtheroids that were sensitive.

COMMENT

A study of the sensitivity of bacteria to antibiotics is complicated by the extreme difficulty encountered in determining with any degree of accuracy whether or not the same organism is being isolated when cultures are obtained over a period of days or weeks from a given patient. Thus, is a strain of Staphylococcus aureus isolated from a patient on one date the same organism as that isolated from the patient on a later date? At times a given organism will either disappear from an infectious process or will be present in such small numbers that it is not recovered when a culture of the infection is made. At some later date this same species will reappear. Is it the same organism that was originally present or has the patient become reinfected with another strain of the bacterium?

The problem assumes clinical importance under the following circumstances: A bacterium is isolated from a patient just before therapy with an antibiotic is begun. It is found to be very sensitive to the drug and, in view of this sensitivity, the dosage of the drug is reduced or is given at longer intervals. At a later date the same species of bacterium is reisolated and is found to be resistant to the antibiotic. May we assume that the resistant strain developed from the sensitive strain under the lower therapeutic dose or is it (1) a new invader with natural resistance or (2) a naturally resistant strain which was originally present in the lesion but for some reason was not isolated when the first culture was taken?

In the case of bacteremias it is probably safe to assume that tolerance for a given antibiotic has developed when a resistant strain is isolated subsequent to the isolation of a sensitive strain, but with open wounds this assumption may not be justified.

It often happens that two or even three colonies of Staphylococcus aureus are fished for identification and sensitivity tests from a streak plate made from an infectious process. On testing the sensitivity of these colonies, all but one of them may prove to be sensitive to the antibiotic. At a later date a second culture of the lesion is made but only one Staphylococcus aureus colony is picked. It is resistant to the drug. Is this the organism which was originally resistant or has one of the susceptible strains developed a tolerance for the drug during therapy?

There appears to be no practical solution to this problem. It seems wiser therefore to maintain as high a concentration of the antibiotic in the body fluids as is possible.

SUMMARY

Two hundred and twelve strains of bacteria, isolated from 38 patients with miscellaneous infections while under treatment with streptomycin, were tested for their susceptibility to this antibiotic. The sensitivities obtained were correlated with the blood concentrations of streptomycin known to be attained in patients under therapy.

1. The majority of the strains of Escherichia coli, Proteus vulgaris, Aerobacter aerogenes, staphylococci and streptococci were susceptible in vitro to the blood concentration of streptomycin that can be maintained in the average patient over a four hour period when given in 500,000 S unit doses. This blood concentration is known to be from 5 to 7.5 or 8 S units per cubic centimeter of blood.
2. The majority of the strains of Pseudomonas aeruginosa investigated were found to be very resistant to streptomycin.
3. Resistant strains of a given bacterium were isolated from patients subsequent to the isolation of sensitive strains. It was assumed that these resistant strains developed from the sensitive strains.
4. Diphtheroids were found to be either extremely susceptible or very resistant to streptomycin.
5. A method was adopted for determining the sensitivity of bacteria to antibiotics within narrower limits than those obtainable with the twofold serial dilution method.

PENICILLIN IN TETANUS

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Tetanus, or lockjaw, is one of the most dreaded infectious complications of wounds. Although its specific etiology has been known for sixty years and its diagnosis has been relatively easy, the treatment of tetanus, once established, is still unsatisfactory and the results are uncertain. It has been disappointing to see the failure of large doses of antitetanic serum to alter the course or lower the mortality of this disease once it has developed, particularly since a small dose of the antitetanic serum has been so effective in preventing the development of the disease when given prophylactically at the time of injury. This has been particularly true in the cases with incubation periods of less than six days. The studies of Abel and Firor [1] have revolutionized the concept of the pathogenesis of tetanus and crystallized the facts known regarding the value and limitations of active therapy of established tetanus. Firor has pointed out that the outlook in generalized tetanus is always grave and that the mortality rate is frequently determined before the patient is seen by the physician. In one group no form of therapy known at the present time will prevent a fatal outcome, while in another group, composed particularly of cases seen during the prodromal period, the issue of life or death is

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From the Department of Surgery, University of Cincinnati College of Medicine, and the Cincinnati General Hospital. The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and the University of Cincinnati.

[1] Abel, J. J.: On Poisons and Disease and Some Experiments with the Toxin of the Bacillus Tetani, Science **79:** 121-129, 1934. Abel, J. J.; Evans, E. A., Jr.; Hampil, B., and Lee, F. C.: Researches on Tetanus: II. The Toxin of the Bacillus Tetani Is Not Transported to the Central Nervous System by Any Component of the Peripheral Nerve Trunks, Bull. Johns Hopkins Hosp. **56:** 84-114, 1935. Abel, J. J.; Hampil, B., and Jonas, A. F., Jr.: Researches on Tetanus: III. Further Experiments to Prove that Tetanus Toxin Is Not Carried in Peripheral Nerves to the Central Nervous System, ibid. **56:** 317-336, 1935. Firor, W. M., and Jonas, A. F., Jr.: Researches on Tetanus: VI. Production of Reflex Motor Tetanus by Intraspinal Injection of Tetanus Toxin, ibid. **62:** 91-109, 1938. Abel, J. J.; Firor, W. M., and Chalian, W.: Researches on Tetanus: IX. Further Evidence to Show that Tetanus Toxin Is Not Carried to Central Neurons by Way of the Axis Cylinders of Motor Nerves, ibid. **63:** 373-403, 1938. Abel, J. J.; Evans, E. A., Jr., and Hampil, B.: Researches on Tetanus: V. Distribution and Fate of Tetanus Toxin in the Body, ibid. **59:** 307-391, 1936. Firor, W. M.; Lamont, A., and Shumacker, H. B., Jr.: Studies on the Cause of Death in Tetanus, Ann. Surg. **111:** 246-274, 1940. Firor, W. M.: The Prevention and Treatment of Tetanus, Am. J. Surg. **46:** 450-453, 1939. Shumacker, H. B.; Firor, W. M., and Lamont, Austin: The Therapeutic Use of Antitoxin in Experimental Tetanus, Surgery **8:** 1-18, 1940.

determined to a large extent by the physician's ability to diagnose promptly and to treat adequately.

With these thoughts in mind, it was decided to explore the potential value of penicillin in the management of established tetanus.

TABLE 1.—*Wound, Incubation Period and Outcome*

Case	Age	Date	Primary Wound	Incubation Period	Results
1	6	6/28/43	Unknown................	Unknown	Recovery
2	9	8/30/43	Puncture wound of right great toe	9 days	Death
3	32	4/13/44	Gunshot wound of thigh	4 days	Death
4	7	6/13/44	Puncture wound dorsum of left foot	11 days	Recovery
5	10	7/28/44	Laceration of knee......	10-15 days	Recovery
6	8	8/27/44	Infected laceration of thigh	10-11 days	Death
7	2	10/26/44	Operative wound on hand; postoperative skin graft	12 days	Death
8	29	10/18/44	Ulceration of foot.......	10 days	Death
9	9	1/ 3/45	Scratch on toe...........	7-10 days	Recovery
10	25	1/ 6/45	Abrasion of leg..........	7 days	Recovery
11	8	1/20/45	Abrasions of chin and neck	12 days	Recovery
12	4	2/ 3/45	Unknown................	Unknown	Death
13	5	2/22/45	Puncture wound of left heel	Unknown	Death
14	8	3/30/45	Puncture wound of right palm	5 days	Death
15	20	5/21/45	Laceration of scalp......	3-5 days	Death
16	15	6/16/45	Superficial laceration of leg	7 days	Death

MATERIAL

During the past twenty-three months we have seen and studied 16 cases of established generalized tetanus, and 14 of these were treated during a period of twelve months (table 1). Eleven patients were 10 years of age or less and the oldest patient was 32. Eleven were males and 5 were females. The primary wound was unusually small (table 1) and often so insignificant that it was overlooked until the time of admission to the hospital. In 2 instances the primary wound was unknown and was never demonstrated by clinical examinations. Five of the wounds were simple puncture wounds, 4 were infected lacerations, 3 were abrasions or deep scratches, 1 was a plastic operative wound, and the other was a recurrent ulcer of the foot. Ten of the wounds were on the lower extremity, 2 were on the face or scalp and 2 were on the hand. The incubation period of the disease was unknown in 3 cases, five or less days in 3 cases, six to ten days in 6 cases and eleven to fifteen days in the remaining 4.

TABLE 2.—*Treatment and Result*

Case	Wound Excised	Antitoxin	Penicillin	Days in Hospital	Results	Penicillin—Beneficial Results
1	No	150,000	None	17	Recovery	
2	Yes	390,000	None	9	Death	
3	Yes	340,000	280,000	60 hrs	Death	No obvious beneficial results
4	Yes	100,000	1,560,000	21	Recovery	Questionable
5	Yes	75,000	None	27	Recovery	
6	Yes	65,000	65,000	16 hrs.	Death	Did not live long enough
7	No	20,000	60,000	24 hrs.	Death	No definite beneficial results; did not live long enough
8	No	290,000	250,000	48 hrs.	Death	None apparent
9	No	50,000	960,000	17	Recovery	Mild case; no obvious benefit
10	Yes	150,000	1,445,000	25	Recovery	No beneficial effects apparent
11	No	250,000	1,255,000	23	Recovery	Definite benefit; control of pneumonia and lowering of temperature
12	No	60,000	225,000	60 hrs.	Death	None
13	No	20,000	145,000	30 hrs.	Death	None apparent
14	Yes	100,000	605,000	4	Death	None apparent
15	Yes	260,000	500,000	4	Death	None apparent
16	Yes	140,000	700,000	5	Death	None apparent

METHODS

All of the patients received antitetanic serum intravenously or intramuscularly as soon after diagnosis as possible (table 2). The amount of antitoxin administered varied between 20,000 and 390,000 units. Fourteen of the patients received 50,000 or more units, 10 received 100,000 units or more and 5 received 250,000 or more units. In 9 instances the primary wound was excised one hour after infiltration of 10,000 to 20,000 units of antitetanic serum into the surrounding area. The resultant wound was left open and treated topically by the daily application of zinc peroxide-calcium peroxide ointment.[2] Penicillin was administered to 13 of the patients, and the remaining 3, not receiving it, were used for contrast. The usual dose was 15,000 units every three hours. In 8 cases a total of 500,000 or more units of penicillin was given, and 3 patients received a total of 1,000,000 to 1,500,000 units. All of the patients would have received a million or more units of penicillin if they had lived long enough.

RESULTS

There were 10 deaths and 6 recoveries, giving a mortality rate of 62.5 per cent. Nine of the 13 patients treated with penicillin died. An analysis of these deaths is interesting. All of the patients with incubation periods known to be five days or less died, 4 of 6 patients with incubation periods of six to ten days died, only 1 of 4 with incubation periods of eleven to fifteen days died. Two of the 3 with unknown incubation periods died. The clinical courses of these 2 patients with death occurring thirty and sixty hours after admission to the hospital strongly suggested that their incubation periods were also less than five or six days. These observations reemphasize the relationship of high mortality rate and short incubation period.

TABLE 3.—*Causes of Death*

Case	Cause of Death
2	Gas gangrene on eighth day; died two hours after amputation
3	Respiratory arrest during convulsion
6	Died sixteen hours after admission in convulsion with respiratory arrest
7	Toxemia; pyrexia
8	Respiratory arrest
12	Toxemia; respiratory arrest
13	Toxemia; respiratory arrest; pyrexia
14	Respiratory arrest; toxemia; pulmonary edema
15	Respiratory arrest
16	Respiratory arrest; toxemia

The amount of antitoxin given did not seem to affect the rate of survival. Four of the 5 patients receiving 250,000 or more units of tetanus antitoxin died, 5 of the 10 patients receiving 150,000 units or less died and 4 of the 6 receiving 75,000 units or less died. No immediate reactions to the serum occurred, but typical serum sickness developed in case 10.

Experience has shown that clinical improvement in most established infections usually occurs within eighteen to seventy-two hours after the onset of treatment with penicillin. In contrasting the cases in which penicillin was administered with those in which it was not, no obvious beneficial effects such as a fall in the temperature and pulse rates, or definite decrease in the incidence, duration or severity of convulsive seizures were noted in the course of the disease that could be attributed to the administration of penicillin, except in case 11. This child had developed a complicating pneumonia during the prolonged anesthesia produced by solution of tribromoethanol, and the administration of penicillin was followed within thirty-six hours by definite clinical improvement with a fall in the temperature and pulse rates, although the signs of tetanus continued to run their course. It is interesting to note that 6 of the 9 deaths of patients receiving penicillin occurred within sixty hours or less after admission to the hospital and the start of therapy. Respiratory arrest was the immediate cause of death in 8 of these 9 cases (table 3). Associated conditions at death were pulmonary edema, hyperpyrexia and evidence of profound toxemia. None of the patients with incubation periods of five days or less survived.

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[2] Reid, M. R., and Altemeier, W. A.: Peroxide Ointments, Ann. Surg. **118**: 741-750, 1943. Altemeier, W. A.: Postoperative Infections, S. Clin. North America, to be published.

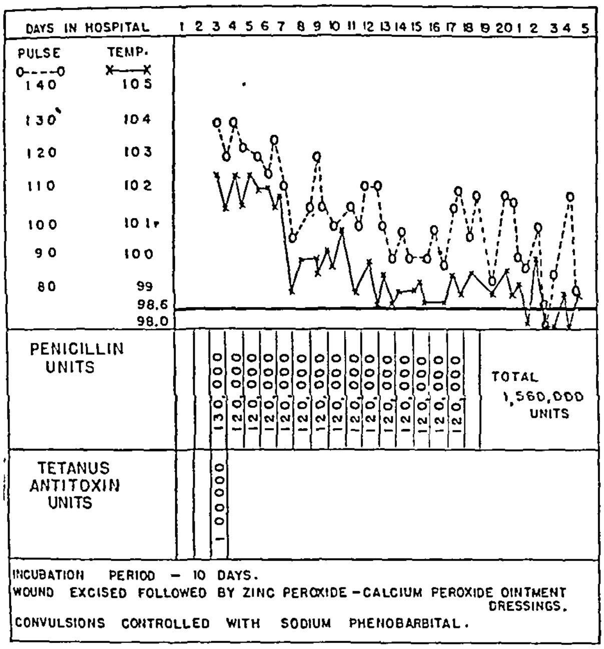

Chart 1.—Clinical course of patient 4, treated with antitoxin and penicillin

The results of treatment which are of especial interest are illustrated in the following 5 representative cases:

Case 4.—L. H., a white boy aged 7 years, admitted to the hospital on July 13, 1944, had received a small puncture wound on the dorsum of his left foot ten days before admission while running through a field of wheat stubbles. A local infection developed, which the mother treated with poultices of onions each night. The appearance of the local lesion improved, but three days before admission he began to complain of pain in the back. The day before admission, while playing, he fell twice and seemed to be very awkward. On the day of admission he complained of increasing pain in the back, inability to open the jaw, and stiffness of the neck and back.

On examination the boy appeared well developed, well nourished and dirty, and he was extremely alert and apprehensive. It was impossible to open his mouth more than 1 cm. A small infected puncture wound about the size of a quarter (24 mm.) was present on the dorsum of the left foot just proximal to the third and fourth toes. The musculature of the abdomen, back and extremities was rigid and in tonic spasm. All reflexes were hyperactive, and there was sustained clonus of the left ankle.

He received 90,000 units of tetanus antitoxin by the intramuscular and intravenous routes, and an additional dose of 10,000 units was injected about the wound. One hour later the wound was excised and a splinter of wood was found in its center. Culture of the wound showed Clostridium tetani. The resultant area was packed open with gauze saturated in zinc peroxide-calcium peroxide ointment. Penicillin therapy was also used, 15,000 units every three hours for a total dose of 1,560,000 units. Under this treatment his condition at first became worse. The neck rigidity, trismus and back rigidity increased and clonic spasms developed. These were controlled fairly well by frequent injections of phenobarbital sodium. After three days, however, these signs gradually decreased, and he began to recover (chart 1). The wound assumed a healthy appearance and healed by secondary intention. When the patient was dismissed from the hospital twenty days later, the skeletal muscles of the extremities, back and abdomen were still moderately spastic, although he was able to open his mouth widely. Subsequently his family physician reported that he had made a complete recovery.

This was a moderately severe case of tetanus with an incubation period of ten days resulting from an infected puncture wound of the dorsum of the left foot. Although the patient recovered, it was impossible to attribute any beneficial results to penicillin.

Another case of tetanus with an incubation period of eleven days, treated with tetanus antitoxin but without penicillin, was used for contrast with the preceding one:

Case 5.—R. N., a white boy aged 10 years, was admitted to the Cincinnati General Hospital with a history of having fallen three weeks before on a piece of broken glass, cutting his knee. The wound bled freely and was washed with warm water and covered with a clean cloth. About four hours later the family physician washed it with a disinfectant and approximated the wound edges with adhesive tape. The child bumped the knee severely enough to open it again three times during the next few weeks. A little more than a week before admission the patient developed stiffness of the thigh, neck and back muscles and rigidity of the jaws. Two days before admission he developed clonic convulsions with no loss of consciousness.

The patient was well developed and well nourished. There were risus sardonicus and rigidity of the jaws. A laceration on the right knee showed induration of the surrounding tissues but no lymphadenitis nor lymphangitis. The deep reflexes of the lower extremities were somewhat hyperactive, and ankle clonus was sustained bilaterally.

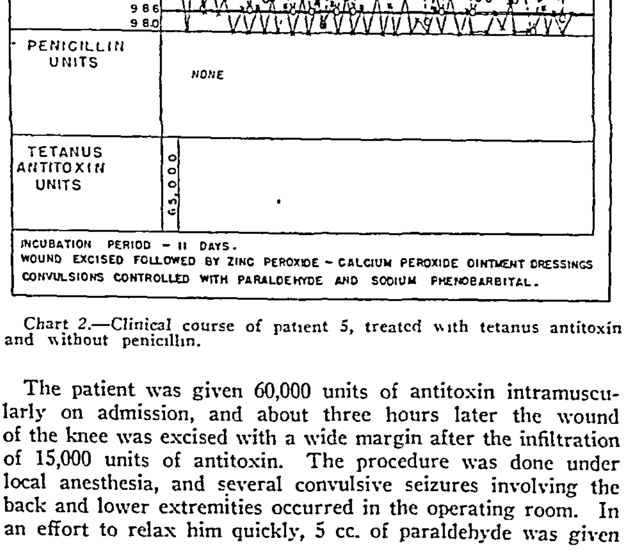

Chart 2.—Clinical course of patient 5, treated with tetanus antitoxin and without penicillin.

The patient was given 60,000 units of antitoxin intramuscularly on admission, and about three hours later the wound of the knee was excised with a wide margin after the infiltration of 15,000 units of antitoxin. The procedure was done under local anesthesia, and several convulsive seizures involving the back and lower extremities occurred in the operating room. In an effort to relax him quickly, 5 cc. of paraldehyde was given intramuscularly, but the stimulation of the pain caused by this sent him into a series of generalized tetanic spasms He was kept mildly sedated with paraldehyde and phenobarbital For three days the patient's condition did not improve but seemed to get worse Beginning with the fourth day after admission, definite signs of improvement became obvious with a fall in temperature and a decrease in the number and severity of convulsive seizures (chart 2) The local wound was treated with zinc peroxide-calcium peroxide ointment applied every forty-eight hours On the twenty-first day it was grafted with skin successfully The patient was discharged on the thirty-first hospital day much improved but still somewhat spastic

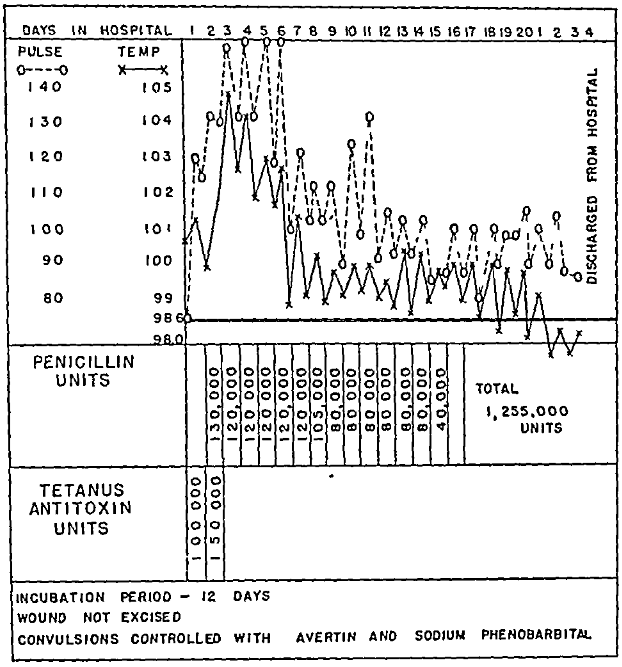

Chart 3 —Definite improvement in clinical course of patient 11 attributable to effect of penicillin on pneumonia complicating the tetanus

Although case 5 treated without penicillin was probably somewhat less severe than case 4 treated with penicillin, it is obvious that in neither was a fatal dose of tetanus toxin fixed in the central nervous system The response of the temperature and pulse to therapy was no better in the case in which penicillin was employed, and the other signs of tetanus subsided at about the same rate in the 2 patients

Case 11 —M R, a white girl aged 8 years, was admitted to the hospital on Jan 20, 1945 with a history of inability to open her mouth for two days Two weeks before admission she had struck a tree stump while sled riding and scratched her chin and neck The wounds appeared to be superficial scratches and apparently healed normally without medication or consultation with a physician She had never received passive or active tetanus immunization Three days before admission the child became irritable and forty-eight hours later she developed inability to open her mouth, headaches and restlessnesss Four hours before her entrance into the hospital she had several generalized convulsions associated with pain and stiffness of the back

Examination showed obvious risus sardonicus and opisthotonos Her temperature was 100 6 F and pulse rate 110 The teeth were tightly clenched, and any attempt to open the mouth passively or actively produced pain There were several superficial healed scratches on the face that showed no evidence of infection The abdominal muscles were in tonic spasm and the abdominal reflexes were hyperactive There was resistance to passive movement of the extremities, and all deep reflexes were hyperactive

The patient was given 100,000 units of tetanus antitoxin intravenously soon after her admission and 150,000 units during the second twenty-four hour period Phenobarbital sodium failed to control the patient's convulsive seizures, which occurred every five to fifteen minutes, and it became necessary to administer solution of tribromoethanol Occasionally convulsive seizures became severe and caused the patient to groan, even though she was anesthetized with the tribromoethanol Phenobarbital sodium was administered as necessary in addition to the tribromoethanol when the convulsions became very severe

An airway was placed in the mouth and the excessive mucous secretions were aspirated by suction as necessary The convulsions continued throughout the third day after admission, and physical signs of bilateral bronchopneumonia developed The temperature rose to 105 F, the face became flushed, and the skin was pale and hot Convulsive seizures occurred at intervals of ten minutes and the respirations became deep and labored at 4 p m on this day Penicillin was started at this time, 10,000 and then 15,000 units intramuscularly every three hours Tribromoethanol therapy was continued

The temperature began to fall thirty-six hours later, reaching 99 F on the fourth day after the onset of penicillin therapy (chart 3) Thereafter the child continued to improve and several days later was able to open her mouth sufficiently to drink and enjoy water and milk The convulsive seizures disappeared and the tonic spasms of the skeletal musculature gradually decreased The dose of penicillin was decreased to 10,000 units every three hours and it was discontinued on February 3 She received a total of 1,255,000 units of penicillin administered over a period of fourteen days The patient was discharged from the hospital on February 10 and was able to walk out of the hospital, although she was still somewhat spastic

In this case recovery was unquestionably due to the combined use of antitoxin, penicillin and adequate sedation Although definite clinical improvement followed the start of penicillin therapy, we believe this improvement resulted largely if not entirely from the control of the bronchopneumonia which had developed, and not from any effect on the tetanus directly

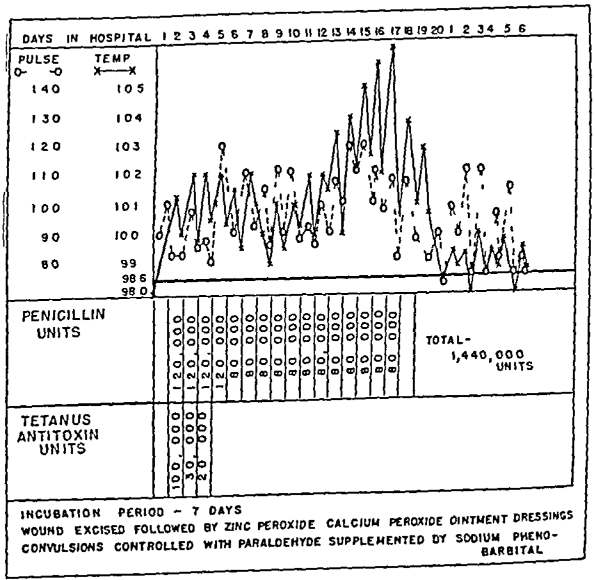

Chart 4 —Clinical course of case 10 treated with penicillin and tetanus antitoxin Serum sickness on eleventh day as result of serotherapy No apparent benefit from penicillin

Case 10 —R K, a white man aged 25, was admitted to the hospital on Jan 6, 1945 with a history of having received superficial lacerations of both legs on the front step of a farm house about Dec 27, 1944 On January 3 stiffness of the jaw occurred, and this increased daily On the 6th anorexia, inability to open the mouth, stiffness of the neck, dysphasia and vague anterior chest pains developed.

On physical examination his temperature was 98.4 F., pulse rate 90 and respiratory rate 30. He appeared clear mentally, and his position was one of typical opisthotonos. Risus sardonicus and trismus were present, and any effort to open the mouth resulted in pain. The pupils reacted poorly to light, the right reacting better than the left. The abdominal muscles were spastic. There was moderate resistance to passive movement of the upper extremities, and the muscles of the lower extremities were held in tonic spasm. All reflexes were hyperactive, and there was sustained left patellar and ankle clonus.

The patient received 40,000 units of tetanus antitoxin intravenously and 40,000 units intramuscularly soon after admission. An additional 20,000 units of tetanus antitoxin was injected about the lesions. One hour later the wounds were excised and packed open with dressings of zinc peroxide-calcium peroxide ointment, which were changed daily thereafter. In the following four days he received 70,000 units of tetanus antitoxin. In addition, immediately after admission, he received 120,000 units of penicillin daily given intramuscularly in doses of 15,000 units every three hours for four days and 10,000 units for another ten days. The total amount of penicillin administered was 1,445,000 units. Effective sedation was obtained with paraldehyde supplemented by phenobarbital sodium. His condition remained more or less stationary for four days, and then the muscle spasticity and convulsive seizures lessened. The temperature and pulse rates remained elevated, however (chart 4). On the eleventh day after admission he developed signs of serum sickness, which became accentuated and gradually subsided during the following nine days. Thereafter his improvement was uninterrupted.

Case 16.—W. B., a white youth aged 16, was admitted to the hospital on June 10, 1945 with a history of having scratched his leg one week before on a bicycle pedal. He received no local treatment nor prophylactic injection of tetanus antitoxin. On the day before admission he began to have difficulty in swallowing and opening his mouth. This increased rapidly and was accompanied by stiffness and pain in his neck. There was no history of convulsions up until the time of admission.

Physical examination showed that the patient was well developed and well nourished. His temperature was 100.1 F., pulse rate 110 and respiratory rate 22. Spasm of the masseter muscles, rigidity of the jaws, risus sardonicus, rigidity of the neck, back and abdomen, and hyperactive reflexes were present. A small superficial abrasion without cellulitis or tenderness was present on the lateral aspect of the right leg. The white blood cell count was 7,000, the red blood cell count 4,900,000 and the hemoglobin 12.75 Gm. Urinalysis was essentially negative. A diagnosis of tetanus was made and immediate treatment was started.

After a negative skin test, a dose of 20,000 units of tetanus antitoxin was injected about the wound. An additional 40,000 units of tetanus antitoxin was given intramuscularly and another 40,000 units given intravenously. Phenobarbital sodium 3 grains (0.2 Gm.) was given hypodermically. One hour later the wound on the right leg was excised under local anesthesia after preliminary cleansing with soap and water. The subcutaneous tissues were found to be discolored and hemorrhagic down to the underlying fascia. The wound was excised and the wound was packed open with gauze impregnated with zinc peroxide-calcium peroxide ointment. Penicillin in doses of 20,000 units was given immediately after admission and every three hours thereafter.

At 2 a. m. June 11 the patient began to have sharp shooting pains in his back every ten minutes. Codeine in 1 grain (0.06 Gm.) doses gave temporary relief. The patient became quite restless and had more extensive and more frequent pains associated with convulsions. The duration of the pains increased and the intervals between attacks decreased until they were almost continuous. He was given 8 cc. of paraldehyde in 2 ounces (60 cc.) of olive oil by rectum and this relaxed him sufficiently to permit sleep. This was repeated every three hours during the following day. At 2 o'clock in the morning of the 12th the patient began to have frequent convulsions, and the dose of paraldehyde by rectum was increased to 12 cc. every three hours. This quieted him considerably, although he continued to have occasional convulsions. Parenteral fluids for general support were given by continuous intravenous injection.

At 6 a. m. on the 12th the patient began to have very severe convulsions which resulted in complete respiratory arrest for several minutes. Artificial respiration was given successfully, and the administration of paraldehyde was continued. Pentothal sodium 5 cc. was started intravenously with the next severe convulsion. It was very effective temporarily and relaxed the tonic spasm of the skeletal muscles considerably. However, severe convulsions again occurred and were followed by periods of complete respiratory arrest. During the attacks of respiratory arrest the patient became pale, then mottled, and finally extremely dark and cyanotic. After the administration of artificial respiration and the injection of pentothal sodium intravenously, regular respirations were resumed. Intocostrin in doses of 3 cc. was given every two hours and nasal oxygen therapy was started.

On June 13 the patient developed acute pulmonary edema, which was controlled by the usual methods. He continued to have attacks of respiratory arrest, and these were overcome with more and more difficulty on this day. In all, he had nine attacks of complete arrest of respiration. Intocostrin was discontinued on the 13th and during the day of the 14th the patient's general condition seemed much improved. He had no convulsions for twenty-four hours and was resting comfortably. The neck and back were still in the position of opisthotonos. In the evening of the 14th the patient commenced to have extremely painful convulsions, which continued throughout the early morning hours of the 15th. He remained perfectly rational in spite of the doses of paraldehyde and pentothal sodium.

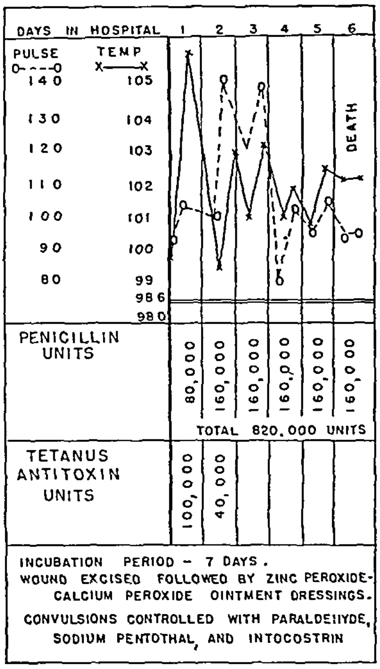

Chart 5.—Course of patient 16, treated with penicillin and tetanus antitoxin.

At 6:45 a. m. on the morning of the 16th he developed a severe convulsion and ceased breathing during it. At 6:55 his pulse became imperceptible, and artificial respiration, cardiac massage and an injection of intracardiac epinephrine failed to revive him.

COMMENT

Reports[3] of cases of tetanus in which recovery occurred after treatment with both antitetanic serum and penicillin have led to an impression that penicillin is a life saving measure in this disease. Our studies have not substantiated this impression.

Tetanus is essentially an infectious disease developing after a variable incubation period and caused by a potent water soluble toxin produced in a wound infected by Clostridium tetani. The responsible wound in civilian practice is usually small and often insignificant (table 1). The chief reason for this is probably that patients with large wounds almost routinely receive one or more prophylactic injections of tetanus antitoxin, whereas those with small wounds do not, usually because of their failure to go to their physician for one treatment. In tetanus it is not the presence of local tissue destruction or signs of invasiveness usually associated with other infections of wounds which present any difficulty in management. Instead it is the production, distribution and fixation in susceptible tissues of extremely small quantities of the specific and powerful toxin. I have seen fatal and typical cases of tetanus originating from primary wounds containing but one drop of pus. In other instances the wound was so insignificant that it completely escaped notice. After a fatal dose of the toxin has become fixed in the central nervous system, death apparently is inevitable under the present methods of treatment. The failure of antitetanic serum, even in extremely large doses, is well known in established clinical and experimentally produced tetanus when a fatal dose of toxin has been fixed in the central nervous system. This is in sharp contrast to its effectiveness in the prevention of tetanus when a prophylactic dose of 1,500 units is administered at the time of injury.

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[3] Buxton, R., and Kurman, R. L.: Tetanus: A Report of 2 Cases Treated with Penicillin, J. A. M. A. **127**: 26 (Jan 6) 1945.

Although penicillin exerts a definite bacteriostatic effect on Cl. tetani, it has no known effect on its toxin. Preliminary experiments here in mice have failed to show any inhibition of the action of tetanus toxin by penicillin. Therefore it is no surprise that our studies have failed to demonstrate any beneficial effect of penicillin on the course of established clinical tetanus.

When complications such as pneumonia or secondary invasive wound infections occur during the course of tetanus, the administration of penicillin is of definite value in their control, as illustrated in case 11.

The failure of penicillin to alter appreciably the course of established tetanus reemphasizes several very important concepts: (1) that the length of the incubation period is the most important single prognostic sign, (2) that the essential primary cause of the disease is a bacterial toxin and (3) that successful management depends not on chemotherapy but on early diagnosis during the prodromal period, immediate neutralization by specific serotherapy of all existing free toxin in the body, removal of the source of toxin, control of the convulsive seizures, control of the attacks of respiratory arrest and the administration of general supportive measures.

SUMMARY

A clinical study of 16 cases of established generalized tetanus has failed to show evidence of any beneficial effect of penicillin on the course of this disease. There was no obvious fall in the temperature or pulse rates as has been repeatedly seen in other infections susceptible to its action, no decrease in mortality or morbidity nor any definite decrease in the severity, duration and frequency of the convulsive seizures which could be attributed to the action of penicillin. Exceptions may be found in cases of tetanus complicated by pneumonia or other infections susceptible to penicillin. In such instances, however, the improvement that occurs is due to the effect of the chemotherapeutic agent on the complicating infection and not on tetanus.

The evidence indicates that until some direct attack is possible on the fixed toxin or the products of its fixation in the central nervous system, the successful management of tetanus depends not on chemotherapy but on early diagnosis, adequate serotherapy for neutralization of free toxin, control of the convulsions and the administration of general supportive measures.

OCCURRENCE OF BRUCELLA MELITENSIS IN IOWA

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Brucella melitensis, the species of Brucella with usual source in goat and sheep, is now known to occur endemically in Iowa. Brucella abortus and Brucella suis, etiologic agents for brucellosis in cattle and hogs respectively, have been recognized and observed in Iowa since 1927. On the other hand, brucellosis of man caused by Brucella melitensis was for years considered an exotic type of disease in this area. The present report, based on laboratory findings and epidemiologic investigations, presents data referable to 20 cases of brucellosis diagnosed in Iowa during the past two years and found to be caused by the caprine strain of brucella, Br. melitensis.

ISOLATION OF BRUCELLA IN IOWA

During the period July 1, 1927 to June 21, 1945 brucella strains totaling 339 were recovered from human sources in the State Hygienic Laboratory by or under the direct supervision of one of us (I. H. B.). Of these strains 228 (67.3 per cent) were Br. suis, 83 (24.5 per cent) Br. abortus and 26 (7.7 per cent) Br. melitensis. Two (0.5 per cent) remain untyped because of dissociation.

BRUCELLA MELITENSIS STRAINS IN IOWA

Of the twenty-six strains of Brucella melitensis thus far isolated, all but one have come to light since December 1943. The solitary strain of Br. melitensis isolated in Iowa during June 1930 was recovered from the blood of a Mexican, a railroad employee then hospitalized in this state, who apparently acquired infection in Mexico previous to arrival in this country.[1]

Br. melitensis was isolated from the blood of 2 packing house workers in Iowa during December 1943. These mark the first 2 instances of brucellosis acquired in this state in which the melitensis species of Brucella was discovered to be the causative organism. In 1944 additional melitensis strains numbering fourteen were cultured from the blood of farmers and packing house employees. From Jan. 1 to June 21, 1945 isolations of this type numbered nine, making a total of twenty-six at the time of this report.

BLOOD CULTURE AND BLOOD CLOT CULTURE

In the series of twenty-six melitensis cultures here reported, eleven brucella strains were isolated from blood cultures (tryptose broth medium, p_H 6.8) as secured and forwarded to the State Hygienic Laboratory by attending physicians. The remaining fifteen strains were isolated from the blood clots of specimens submitted by attending physicians for agglutination tests. At present only the clots of specimens showing brucella agglutinins in the serum are cultured for the specific organism.

Dr. Jordan is director, Division of Preventable Diseases, and Epi- [illegible] Iowa State Department of Health, Des Moines [illegible] State Hygienic Laboratory, Iowa State Depart- [illegible] assistant professor of hygiene and preventive [illegible] of Iowa College of Medicine.

[1] Jordan, [illegible] and Borts, I. H.: Double Infection by Organisms of the Brucella Group, Pub. Health Rep. 46: 2437-2443 (Oct. 9) 1931.

When obtained, growth is identified on the basis of its gram stain, agglutinability with known antibrucella serum, hydrogen sulfide production and the bacteriostatic action of dyes as recommended by Huddleson.[2]

BLOOD CULTURES

Significance and Procedure.—The blood culture is of first importance among methods of confirming clinical diagnosis. Moreover, the isolation of Brucella with subsequent species identification is the only means of tracing infection to the proper source in domestic animals. Next in importance to the blood culture as a laboratory aid to the physician is the agglutination test. The skin test and opsonocytophagic test are indicative of exposure to infection in the recent or remote past but must be interpreted with great caution.

Organisms of the Brucella group grow best in tryptose broth.[2] The blood culture bottle containing 100 cc. of broth is inoculated with 3 to 5 cc. of blood. The blood should be taken during the afternoon or at the height of fever; strict asepsis must be observed, preferably with use of autoclaved needles and syringes. The blood culture should be incubated for several days, when possible, before forwarding to the diagnostic laboratory. Following arrival at the laboratory, blood cultures are subcultured biweekly to solid, tryptose agar medium, with prolonged incubation in an atmosphere containing 10 per cent carbon dioxide. This procedure is carried out for twenty-one days before a blood culture is discarded as negative.

Procedure with Blood Clot Culture.—In the absence of a blood culture, the bacteriologist in the quest for Brucella turns attention to the blood clot of the specimen submitted for the agglutination test. This procedure is often unsatisfactory in that spore forming and other bacteria are commonly present in the specimen on arrival at the laboratory. Such contaminations are the result of failure to use autoclaved syringes and needles or proper care in transferring the specimen from the syringe to the sterile test tube.

Beginning in July 1944, effort was made to find a suitable culture medium which would dissolve the blood clot and provide necessary nutriment for Brucella cultivation. The mediums devised by Sellers and Morris[3] and by Bohls and Schuhardt[4] were subjected to further modification. The elimination of glycerin and the substitution of as little as 0.2 per cent of tryptose for peptone in these formulas were found to enhance the growth of Brucella, with no additional benefit gained in concentrations beyond 2 per cent. The addition of para-aminobenzoic acid resulted in maintenance of growth for many months.

Blood clots of specimens are handled in the following manner: After centrifugation, the serum is drawn off with a capillary pipet under rigid asepsis. The clot is poured carefully into a tube of tryptose-bile medium. Clot cultures are incubated under 10 per cent carbon dioxide and are subcultured to tryptose slants weekly for three weeks before being discarded as negative.

LABORATORY DATA

Information regarding agglutination reactions and blood and clot culture isolations in the series of 20 melitensis cases thus far studied is contained in table 1.

CLINICAL MANIFESTATIONS

Illness due to Br. melitensis infection was characterized by fever, chills or chilliness, sweating, weakness; loss of weight, headache, muscular pains and leg pains. Although the course was mild in several cases, infection was generally more severe than that caused by Br. abortus and comparable with illness due to Br. suis. Rash, nosebleed, glandular swellings and nasal ulceration were noted in several of these cases. The rash, macular in character, resembles that seen in streptococcic septicemia; glandular swellings may simulate those of Hodgkin's disease.

EPIDEMIOLOGIC DATA

It is desired to emphasize the primary importance of the laboratory findings in this series of cases. Epidemiologic investigations were prompted by and dependent on isolation and identification of Br. melitensis in the laboratory.

Detailed information with reference to 20 of the 26 patients from whose blood Br. melitensis was isolated was secured from case reports completed through courtesy of Iowa physicians and through field investigation in cooperation with attending physicians and veterinarians.

Table 1.—*Brucella Melitensis Infection in Iowa*

Agglutination reactions with Brucella antigen; dates of receipt of culture or of isolation of Brucella melitensis from blood culture or clot culture in a series of 20 male patients.

No.	Patient	Age	Agglutination Reaction	Agglutination Date	Blood Culture	Clot Culture
1	J. W.	27	1:1,280	11/11/43	12/11/43	
2	L. K.	30	1:640	2/24/43	12/23/43	
3	O. F.	18	1:1,280	....	2/25/44	
4	C. C.	36	1:1,280	3/13/44	3/15/44	
5	D. B.	32	1:1,280	6/ 1/44	6/12/44	
6	H. S.	41	1:320	7/ 8/44	....	7/ 8/44
7	H. G.	33	1:1,280	8/22/44	....	8/22/44
8	B. R.	19	1:1,280	8/30/44	....	8/30/44
9	H. A.	32	1:320	9/ 7/44	....	9/ 7/44
10	H. J.	24	1:320	9/ 7/44	....	9/ 7/44
11	V. H.	39	1:80	9/13/44	....	9/13/44
12	H. Q.	36	1:1,280	9/ 9/44	9/19/44	
13	T. H.	51	1:640	10/28/44	....	10/28/44
14	J. R.	34	1:1,280	10/19/44	11/13/44	
15	L. S.	8	1:160	1/ 8/45	....	1/ 8/45
16	A. G.	39	1:160	12/30/44	....	12/30/44
17	J. U.	32	1:1,280	4/18/45	....	4/18/45
18	M. D.	45	1:640	3/13/45	....	4/ 5/45
19	A. R.	40	1:1,280	5/ 9/45	....	6/25/45
20	C. P.	27	1:1,280	5/26/45	....	5/26/45

Age and Sex Distribution (shown in table 1).—All of the patients were males; the youngest was 8 years of age, the oldest 51. Ten of the 20 were in the age group 30-39, and all but 3 were in the age groups 20-59.

Residence; Occupation.—The patients reside in ten different counties with distribution in central, north central and northeastern Iowa, but including areas as widely separated as southwestern Iowa and the eastern border of the state.

Of the 20 patients 10 were packing house employees; the remaining 10 were farm workers, farm residents or visitors (table 2).

Use of Dairy Products.—Raw milk was used by the patients on farms, while the packing house employees, with one or two exceptions, drank pasteurized milk prior to onset of symptoms.

Contact with Livestock.—Table 2 indicates types of contact with livestock. All of the patients gave the history of direct contact with domestic animals, with one exception. This patient (18, M. D.), a painter, worked on several farms during the months prior to illness. On one farm he painted a hog house. Hogs are said to have "nosed at the staging." By rubbing or otherwise, these animals may have contaminated ladders or planks conveying infection to the patient indirectly.

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[2] Huddleson, I. Forrest: Brucellosis in Man and Animals, revised edition, Commonwealth Fund, 1943, p. 25.

[3] Sellers, T. F., and Morris, J. F.: The Comminution of Blood Clots for Cultures, Am. J. Pub. Health **20**: 195-196 (Feb.) 1930.

[4] Bohls, S. W., and Schuhardt, V. T.: Combined Agglutination Tests and Blood Clot Cultures in the Diagnosis of Typhoid Fever, Texas State J. Med **31**: 210 212 (July) 1935.

It is noteworthy (table 2) that only 7 of the 20 patients concerned gave a history of direct contact with sheep. Two of these patients stated that such contact occurred some years prior to the recent illness. One (9, H. A.) had judged sheep at county fairs in Iowa ten years preceding his illness. The other patient (16, A. G.) had worked with sheep on ranches in Montana during 1935-1937. Whether the history of contact with sheep in the remote past is significant in these cases is problematic and cannot be affirmed. That infection in these 2 instances may be traceable to hogs is suggested by the fact that on both farms (cases 9 and 16, table 2) sows had lost pigs during months preceding human illness. Of the 7 patients who had contact with sheep, 5 had also been in direct contact with hogs, and 3 with cows.

highly probable that further study will reveal that hogs, in addition to serving as the usual reservoir for Br. suis, will also prove to harbor Br. melitensis.

Evidence to show that hogs are susceptible to Br. melitensis has been presented by Huddleson,[5] who states: "Melitensis is pathogenic for the hog. While I was in Malta in 1938 I saw evidence of its pathogenicity. A considerable amount of left-over unpasteurized goat's milk was fed to a group of pregnant sows. All of them aborted. Melitensis was recovered from the fetuses. For some reason this observation was never reported in the literature."

McNutt[6] has reported isolation of Brucella from the organs and tissues of hogs at the time of slaughter. He[7] states that all strains which were isolated from hogs in 1938 were of the porcine type of Brucella, Br. suis.

According to Castenada, Tovar and Velez,[8] Br. melitensis represents the most common type of brucellosis in Mexico. Of 158 strains isolated by these workers, 143 were Br. melitensis, 5 Br. abortus and 2 Br. suis.

TABLE 2.—*Brucella Melitensis in Iowa*

Types of Contact of Twenty Patients, with Available Information Regarding Infection in Animals

		Contact with Animals				Probable Place of Exposure	Infection in Animals	
No.	Patient	Hogs	Cows	Sheep	Other		History	*Agglutination Reactions*
1	J. W.	No	No	Yes	....	Packing industry	Undetermined	No current data
2	L. K.	Yes	No	No	....	Packing industry	Undetermined	No current data
3	O. F.	Yes	No	No	....	Packing industry	Undetermined	No current data
4	C. C.		Dock office employee		.	Packing industry	Undetermined	No current data
5	D. R.	Yes	No	No	....	Packing industry	Undetermined	No current data
6	H. S.	Yes	No	Yes	....	Packing industry and farm	Negative	7 sheep, 4 sows negative on farm
7	H. G.	Yes	Yes	Yes	....	Packing industry	Undetermined	No current data
8	B. R.	Yes	Yes	No	....	Farm	Negative	Cows negative; sows, sheep not tested
9	H. A.	Yes	No	Yes	....	Farm	Sows lost pigs	Cows negative; sows not tested
10	H. J.	Yes	Yes	No	Turkeys	Farm	Negative	Animals not tested
11	V. H.	Yes	Yes	Yes	....	Packing industry	Undetermined	No current data
12	H. Q.	Yes	No	No	....	Packing industry	Undetermined	No current data
13	T. H.	No	Yes	Yes	....	Packing industry	Undetermined	No current data
14	J. R.	Yes	No	No	....	Packing industry	Undetermined	No current data
15	L. S.	Yes	Yes	No	....	Farm	3 sows lost pigs	26 cows negative; 4 sows positive; 1 suggestive
16	A. G.	Yes	Yes	Yes	....	Farm	Sows lost pigs	Sows not tested
17	J. U.	Yes	Yes	No	....	Farm	Litters born alive	8 of 9 sows reacted
18	M. D.	Yes	No	No	....	Painted hog house	Undetermined	No current data
19	A. K.	Yes	Yes	No	....	Farm	10 sows threw pigs	Sows not tested; 3 cows reacted
20	C. P.	Yes	Yes	No	....	Farm	3 sows lost pigs	Sows not tested

History and Evidence of Brucellosis in Animals.—Table 2 presents additional information regarding brucellosis in animals suspected as the probable source of infection. In the group of 10 packing house employees, history of infection in animals is undetermined. Of the 10 instances in which infection was acquired on farms, there was no history of abortion in sheep. On the other hand, on five of these farms, sows had lost pigs and, on a sixth farm, 8 or 9 sows were found to react positively to the agglutination test for brucellosis.

COMMENT

The isolation of Br. melitensis from the blood of persons in Iowa who during the past two years have suffered an attack of brucellosis demonstrates that infection due to this species of Brucella must now be considered endemic in Iowa.

Sheep and goats are regarded as the usual animal reservoirs of infection caused by Br. melitensis. In the series of cases presented in this report, there is no history of contact with goats. Moreover, while 7 of the 20 patients in this series gave the history of direct contact with sheep in the recent or remote past, 12 had direct contact with hogs only and no known contact with sheep. On the basis of epidemiologic findings it is

It is probable that Br. melitensis has been introduced into Iowa during the past decade and that this species of Brucella has been transmitted to hogs from sheep imported originally from western and southwestern sections of this country.

SUMMARY

Brucella melitensis infection is now known to be endemic in Iowa. This organism was isolated from the blood of 20 patients. Isolation of Brucella from the blood culture of patients and from the clot of blood specimens submitted for the agglutination test was of primary importance. Identification of strains as Br. melitensis served as the basis for subsequent field study.

All of the patients were males. Ten were farm residents and 10 packing house employees.

Epidemiologic study of Br. melitensis infection in Iowa incriminates hogs as a probable and major source of infection.

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5. Huddleson, Forrest I.: Personal communication to the authors, Dec. 26, 1944.

6. McNutt, S. H.: *Brucella Infection in Swine, Proceedings* 42d Meeting, U. S. Livestock Sanitary Association, 1938-1939, pp. 90-97.

7. McNutt, S. H.: Personal communication to the authors, April 12, 1945.

8. Castenada, M.; Tovar, R., and Velez, A.: Studies on *Brucellosis* in Mexico: Comparative Study of Various Diagnostic Tests and Classifications, J. Infect. Dis. **70:** 97 (March-April) 1942.

Further study is planned, in cooperation with the Bureau of Animal Industry, the State Department of Agriculture and veterinarians, with the purpose of isolating Br. melitensis from the tissues of hogs or other animals incriminated as sources of infection.

BACKACHE

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Separation of the neural arch, a condition which has been described in early papers dealing with vertebral anomalies and spondylolisthesis, has long been recognized, and the importance of this defect of the isthmic zone has been pointed out as the basis for the condition spondylolisthesis. It is also known as prespondylolisthesis, spondylolysis, rachischisis and spondyloschisis. It is probably not too well known that defects of the isthmic zone are frequently encountered, that they can be present without producing symptoms of spondylolisthesis and that they can cause disabling low back pain, especially when the back is subjected to unusual strain. The first case of a combination of spondylolisthesis and protrusion of an intervertebral disk was reported in 1939 by Baker, Love, Cameron and one of us.[1] The frequency of occurrence of separation of the neural arch was pointed out in 1924 and in 1931 by Willis,[2] who found an incidence of 4.28 per cent in 748 skeletons, 3.8 per cent occurring at the last lumbar vertebra. It is our impression that this defect is often present but is unrecognized unless oblique roentgenograms are studied, since routine anteroposterior and lateral views of the spinal column may fail to show it.[3]

The term "isthmic zone" is used to designate the pars interarticularis or isthmus, or that portion of a vertebra between the superior and inferior articular processes. This area is a narrowed bridge of bone and furnishes the only true bony support of the vertebral column. Defects of this bony bridge, or isthmic zone, may be congenital or traumatic, probably both, and it is very likely that defects in bony continuity held together by fibrous or cartilaginous tissue may be ruptured by trauma and precipitate backache, although many patients give a history of long duration and gradual onset.

Chandler,[4] in an attempt to determine whether or not there was any direct connection between developmental defects of the isthmic zone and those which were found clinically or post mortem, made a microscopic study of a series of fetal spinal columns but was unable to show a single instance of divided osteogenetic center of the lamina. Osteogenesis was found to begin in the isthmic portion and to extend gradually in both directions, anteriorly to the pedicle and superior articulation, and posteriorly to the lamina and inferior articulation. He said that "in several instances it was noticed that ossification progressed by forming cystlike spaces, the thin shell of bone replacing the cartilage in the region of the isthmus." He suggested that this might leave a vulnerable spot in the isthmus, which then might give way under certain conditions of stress.

One of us[5] has suggested that an injury at or shortly after birth may produce a bone infarct with resultant softening and later a picture strongly suggestive of osteochondritis. Also he believes that trauma is the exciting factor but that underlying it in most instances is a defect and that injury may be considered the principal etiologic factor and a congenital lesion the anatomic or predisposing factor.

Chandler has expressed the belief that the incomplete fissure occasionally seen in the roentgenogram at the region of the isthmus adds weight to the hypothesis of defective ossification rather than fracture. He stated that "complete division through the isthmus with separation of the fragments must be attributed to trauma, either acute or chronic."

Clinically there may or may not be a history of trauma. Many patients complain of backache of many years' duration, and the majority of them have had the usual conservative treatment by a number of physicians. They frequently complain of low back pain, with extension across the small part of the back but rarely of pain in the legs. The pain is aggravated in direct proportion to the amount of strain placed on the back, and therefore the complaint of an unusual amount of backache following sitting or standing in one position for a very long time is suggestive of instability resulting from a defect of the isthmic zone. The patients may receive varying degrees of relief of symptoms by decreasing activities, by wearing a firm support to the back or from lying down and resting. The physical examination may reveal that the patient has an essentially normal back, or it may reveal varying degrees of muscle spasm, tenderness and limitation of motion. In some cases there may be extension of pain down one or both legs, and herniation of a disk has been associated with the defect.

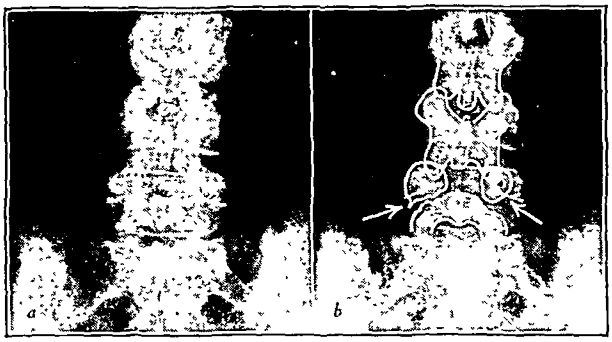

Fig. 1.—*a*, anteroposterior view demonstrating bilateral defects in the isthmic zone of the fifth lumbar vertebra; *b*, defects outlined.

The diagnosis depends usually on a careful history and an examination for the defect in those patients whose story suggests instability of the spinal column. At the time of roentgenographic examination of patients

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From the Section on Orthopedic Surgery, Mayo Clinic.

[1] Meyerding, H. W.; Baker, G. S.; Love, J. G., and Cameron, D. M.: Spondylolisthesis with Protrusion of Intervertebral Disk and [illegible] rum Associated with Multiple Loose [illegible] Right Shoulder Joint: Report of a [illegible] n. 14: 801-806 (Dec. 20) 1939.

[2] [illegible] om Vertebral Anomaly, Surg., Gynec. [illegible] The Separate Neural Arch, J. Bone & [illegible] 931.

[3] [illegible] and Kirklin, B. R.: The Oblique View for Demonstration of the Articular Facets in Lumbosacral Backache and Sciatic Pain, Am. J. Roentgenol. 31: 173-176 (Feb.) 1934.

[4] Chandler, F. A.: Lesions of the "Isthmus" (Pars Interarticularis) of the Laminae of the Lower Lumbar Vertebrae and Their Relation to Spondylolisthesis, Surg., Gynec. & Obst. 53: 273-306 (Sept.) 1931.

[5] Meyerding, H. W.: Spondylolisthesis, Surg., Gynec. & Obst. 54: 371-377 (Feb.) 1932; Spondylolisthesis as an Etiologic Factor in Backache, J. A. M. A. 111: 1971-1976 (Nov. 26) 1938; Low Backache and Sciatic Pain Associated with Spondylolisthesis and Protruded Intervertebral Disk: Incidence, Significance and Treatment, J. Bone & Joint Surg. 23: 461-470 (April) 1941; Spondylolisthesis: Surgical Treatment and Results, ibid. 25: 65-77 (Jan.) 1943.

who have other conditions of the lower part of the back the defect is also found incidentally. Anteroposterior roentgenograms frequently suggest defects of the isthmic zone but seldom reveal them as plainly as those demonstrated in figure 1 *a* and *b*. Fairly frequently defects of the isthmic zone are not detectable at all in the anteroposterior views. When they are seen they show up just inferiorly to the shadow cast by the pedicles The lateral roentgenogram shows a higher percentage of defects of the isthmic zone than does the anteroposterior view, provided the defects are large enough and in the right plane; unilateral defects usually are obscured. The defects, as shown in the lateral roentgenogram figure 2 *a* and *b*, are large and are associated with spondylolisthesis, grade 1 (on the basis of 1 to 4, in which 1 designates the least and 4 the greatest degree of spondylolisthesis) (Meyerding). The oblique or three-quarter view is extremely important in determining the diagnosis, and it is seldom that a defect cannot be demonstrated in this view, if present. The superior articular process, the isthmic zone and the inferior articular process show a "bow tie"[6] shadow on the roentgenogram, and the isthmic zone or the center of the "bow tie" is especially demonstrable in the oblique view. The "bow tie" extends over the intervertebral space below the lumbar vertebra to which it belongs. Defect of the fourth and fifth lumbar vertebrae are demonstrated in figure 3 *a* and *b*, and a defect of the fifth lumbar vertebra with sclerosis and irregularity suggesting an osteochondritic process is demonstrated in figures 4 *a* and *b*. The defect shown in figure 6 *a* and *b* is angulated and outlined with sclerotic bone suggestive of a traumatic origin. The bilateral defects demonstrated in figure 5 *a*, *b*, *c* and *d* are so large that they could be classified as a congenital defect. It is probable that the defect shown in figure 7 *a* and *b* is a congenital one involving the fourth lumbar vertebra with additional localized hypertrophic changes of the fourth and fifth lumbar vertebrae.

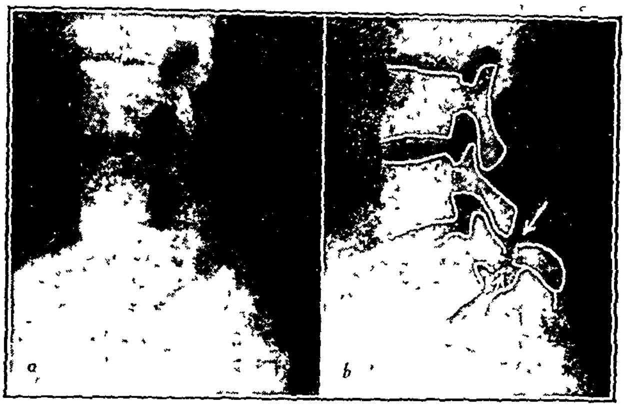

Fig 2—*a*, lateral view demonstrating defect of pedicle of fifth lumbar vertebra; the separation is obvious; *b*, same as *a* but outlined so as to stress the defect of the pedicle.

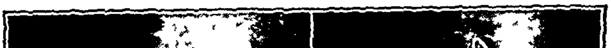

Fig 3—*a*, left oblique view demonstrating defects of the isthmic zone of the fourth and fifth lumbar vertebrae, *b*, defects outlined

The majority of our patients have been treated conservatively with supports to the back, rest, sleeping on a firm bed, application of heat and massage to the back and exercises to strengthen the muscles of the back. Patients who have not responded to conservative treatment have made good progress following fusion of the spinal column by means of double bone grafts inserted over the portion in which the defect is situated, an operation which has been described by one of us (Meyerding). Defects of the isthmic zone are also one of the criteria for bone grafting in cases in which surgical removal of a herniated disk is done.

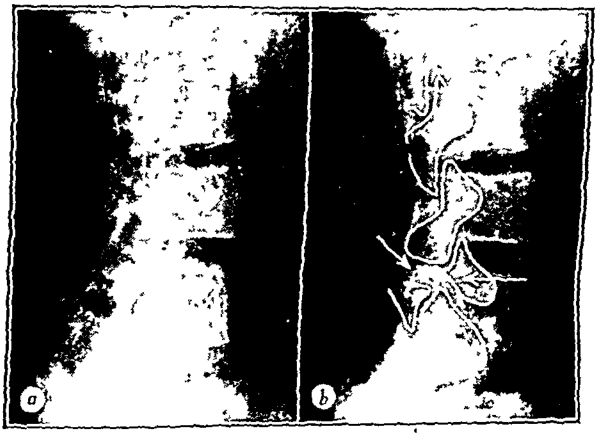

Fig 4—*a*, left oblique view demonstrating sclerosis and irregularity of the fifth lumbar vertebra; *b*, outlined to show "bow tie" defect of fifth lumbar vertebra

COMMENT

We have attempted to call to the attention of the medical profession a fairly common lesion of the spinal column that is responsible for low back pain and to reemphasize the importance of the oblique roentgenogram in determining the diagnosis in cases in which the patient has obscure backache and a weak, unstable back. Treatment is directed toward increasing the stability of the lower part of the spinal column.

REPORT OF ILLUSTRATIVE CASES

The following patients complained of low back pain and were seen at the Mayo Clinic during routine examination, which revealed typical defects of the isthmic zone.

Case 1—A housewife aged 36, seen in October 1944, complained of low backache of four and a half years' duration. She stated that her symptoms had followed a fall in which the shoulder received most of the injury, that the pain was an aching type and was limited to the lumbar and left sacroiliac regions *with occasional extension to the left leg*, that the pain was aggravated by sitting, and that she would get a catch in the lower part of the back when rising from a stooping position. She had no aggravation of the symptoms on coughing or sneezing and no morning stiffness.

The laboratory examination of urine and blood and roentgenograms of the spinal column and pelvis gave negative results

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[6] Galluccio, A. C.: Spondylolisthesis: A General Consideration, with Emphasis on Radiologic Aspects, Radiology 42: 143-158 (Feb.) 1944.

The patient was sent home to try conservative treatment consisting of reduction of weight, baking and massage to the back and the use of a lumbosacral support. Three and a half months subsequently she returned with the same complaints. Anteroposterior roentgenograms at this time revealed an apparent defect of the isthmic zone of the fifth lumbar vertebra, which was confirmed by oblique roentgenograms. Following neurologic consultation, an exploration for protruded intervertebral disk was performed by the neurosurgeon with negative findings. After this a double bone grafting procedure was carried out by the orthopedic surgeon to produce a fusion of the lumbosacral segment of the spinal column. At three and a half months postoperatively, too early to evaluate the final result, the patient has obtained definite relief of symptoms.

CASE 2.—A nurse aged 45, seen in February 1945, complained of low back pain which had been present all her life. She stated that she had undergone hysterectomy eight years prior to her admission but that there had been no relief from her backache, which had become more severe during the six months before examination, and she had had occasional extension of pain to the left thigh and leg. Examination gave negative results except for a slight diminution of the left ankle jerk. The laboratory examination of the blood and urine revealed negative findings. The roentgenograms showed defects of the isthmic zone of the fifth lumbar vertebra with spondylolisthesis, grade 1. There was considerable separation of the neural arch plainly demonstrated in the lateral roentgenogram. The patient is receiving conservative treatment consisting of heat and massage, rest and the use of a lumbosacral corset, from which she has derived considerable benefit. Lumbosacral fusion has been advised if aggravation of symptoms occurs.

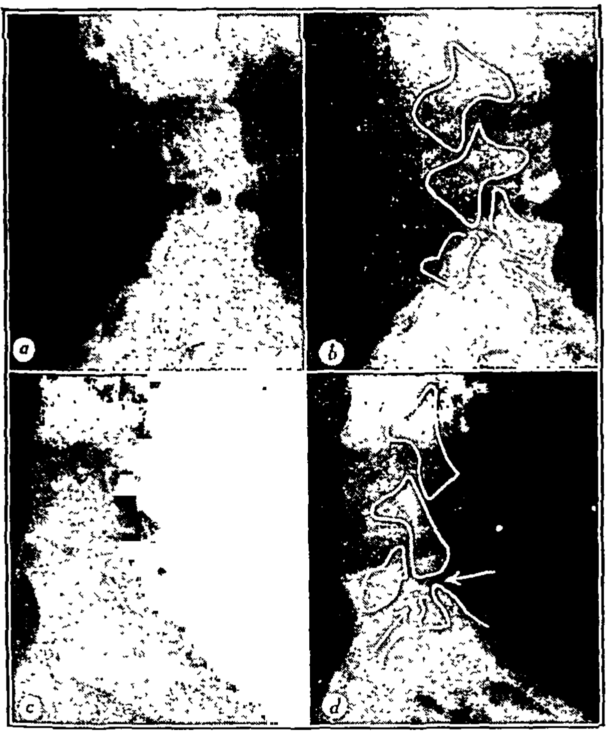

Fig. 5.—*a*, left oblique view demonstrating a large defect of the isthmic zone of the fifth lumbar vertebra; *b*, same as *a* with defect outlined; *c*, right oblique view showing large defect of the isthmic zone of the fifth lumbar vertebra; *d*, same as *c* with defect outlined.

CASE 3.—A man aged 44, a worker in a dry cleaning establishment, seen in January 1945, complained of low back pain which had troubled him for about twelve years and had become more severe and constantly present during the two years just prior to admission. He stated that several years prior to his admission he had had slight pain down the right leg but that he had none at the time of admission. The attacks of pain had never confined him to bed, but they had interfered with his work. He said that he slept better on the floor than on his bed and that the pain was worse on exertion or strain and was relieved by rest. Examination of the back revealed muscle spasm and limitation of motion; that of the lower extremities gave normal results. Laboratory examination of the blood and urine revealed negative results. The roentgenograms revealed defects of the isthmic zone of the fourth lumbar vertebra with spondylolisthesis grade 1 of the fourth lumbar vertebra on the fifth. The disk interspaces were explored by a neurosurgeon, at which time the only positive findings were slight thickening of the ligamentum flavum and extreme mobility of the neural arch of the fourth lumbar vertebra. Following this part of the operation a double bone grafting procedure to produce a fusion of the last three lumbar vertebrae to the sacrum was performed by the orthopedic surgeon. Though it is too early to report the final results, the patient has made a satisfactory convalescence to date.

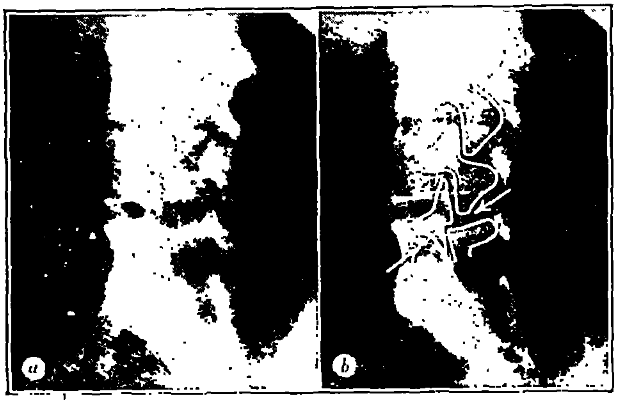

Fig. 6.—*a*, right oblique view demonstrating a defect of the isthmic zone of the fifth lumbar vertebra with sclerotic change; *b*, defect outlined.

CASE 4.—A farmer aged 33, seen in February 1945, complained of attacks of low back pain for many years' duration. He said that he would have two or three severe attacks each year but that there had been no extension of the pain to his legs until he sustained a fall about a month prior to admission. After this fall he had had pain down the left leg to the foot for the first time. The laboratory examination of the blood and urine gave negative results. The oblique roentgenograms revealed defects of the isthmic zone of the fourth lumbar vertebra. The exploration was performed by a neurosurgeon, and a protruded intervertebral disk, fifth lumbar vertebra, was removed. After this part of the operation was completed, the orthopedic surgeon performed a double bone graft to produce a fusion of the lumbosacral segment of the spinal column. The patient has made satisfactory progress, with apparent relief of symptoms at the time of the writing of this paper.

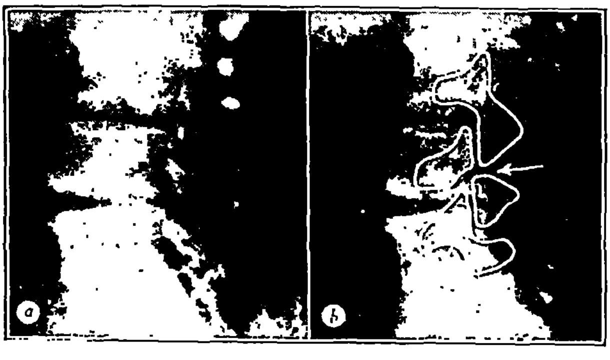

Fig. 7.—*a*, right lateral view demonstrating congenital defect of the isthmic zone of the fourth lumbar vertebra with hypertrophic changes of the fourth and fifth lumbar vertebrae showing anteriorly; *b*, defects outlined.

Case 5.—A man aged 50, a hardware clerk, seen in March 1945, complained of constant low backache with extension of pain to the iliac crests, which had followed a fall on the flat of his back about six months prior to his admission at the clinic. He stated that there had been no extension of pain to the legs but that heavy lifting and stooping caused aggravation of his symptoms, that he had had more pain when sitting than when standing and that heat, rest and wearing of a supporting corset had helped to some extent. The laboratory examination of the blood and urine gave essentially negative results. The oblique roentgenograms revealed defects of the isthmic zone of the fifth lumbar vertebra with spondylolisthesis grade 1. The patient elected a trial of conservative treatment, which is being carried out at the time of the writing of this paper.

Case 6.—A carpenter aged 53 gave a history of a fall of 20 feet three years prior to his admission, at which time the back was injured and since which time he had had constant dull aching pain, stiffness and soreness of the lower part of the back. He said that the pain in the back was aggravated in direct proportion to activity and stress placed on the back, that it was worse at night than in the morning and that there had been no extension of pain to the legs. The examination of the back gave essentially negative results. The laboratory examination of the blood and urine gave negative results. The oblique roentgenograms of the lumbar segment of the spinal column showed defects of the isthmic zone of the fourth lumbar vertebra. The patient is having conservative treatment, consisting of baking and massage. The avoidance of excessive activity, of jarring and strain of the back and of trauma was advised.

Case 7.—A housewife aged 35, seen in March 1945, stated that she had had backache for the first time following a fall down a basement flight of stairs about five years prior to her admission at the clinic. She said that about two years prior to admission the pain in the lower part of the back began to extend down the buttock and into the thigh and that ten months before she came to the clinic it became more constant in character and exertion and strain aggravated it. She also said that it was worse when she was fatigued or after sitting for a time but that the pain in the leg was minimal. The laboratory examination of the blood and urine gave negative results. The physical examination was essentially negative. In this case the anteroposterior, lateral and oblique roentgenograms revealed defects of the isthmic zone and spondylolisthesis grade 1. The oblique roentgenograms revealed bilateral open neural arches of the fifth lumbar vertebra. An exploration at the lumbosacral interspace for a protruded intervertebral disk was found negative by the neurosurgeon. After this part of the operation the orthopedic surgeon performed a double bone graft to the lumbosacral segment of the spinal column; the grafts extended from the third lumbar vertebra to the sacrum. The patient has been making satisfactory progress to date.

Effects of Closed Cranial Injuries.—In about 11.5 per cent of the fatal cases of injury to the head there is found at autopsy some evidence of injury to the upper brain stem in the form of compression, distortion or hemorrhage in the tegmental or basilar portions or both. Such lesions may be the result of general disturbance (traumatic shock to the head, air or fat embolism), of local pressure (by extramedullary hemorrhage) or regional injuries (basal fractures or penetrating foreign bodies), of sudden lateral dislocations of the brain mass, of a coup-contrecoup mechanism (falls or projections on the back of the head), of the effects of pressure from one or both sides by a swollen and/or dislocated temporal lobe (extradural or subdural hemorrhage, subdural fluid accumulation, severe contusions or hemorrhages of the temporal lobe with consequent edema or edema alone) or, finally, of a combination of two or more of these mechanisms. In some cases the vascular lesions may be predisposed to irregular development (vascular anomalies, hypoplasia) or to disease (syphilis, arteriosclerosis). In a few cases the situation may defy analysis and the exact mechanism remain an enigma.—Courville, Cyril B.: Effects of Closed Cranial Injuries on the Midbrain and Upper Pons, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

Clinical Notes, Suggestions and New Instruments

DYSPNEA IN HEMOPHILIA FROM HEMORRHAGE INTO LARYNX

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Hemorrhage from the lower respiratory tract is a relatively rare occurrence in hemophilia. Little stress, however, has been placed on the fact that involvement of the pharynx and larynx by blood extravasations beginning at or above these organs are not uncommon in these patients. Occasionally the extent of the hemorrhage may be such as to interfere with phonation, swallowing and even breathing. In 2 of the instances herein recorded strenuous use of the voice preceded the onset of the manifestations. Hemophilic hemorrhages commonly follow muscular exertion. Even in normal persons, excessive and loud use of the voice may be accompanied by hemorrhage and edema of the larynx,[1] which usually disappear with rest. These observations suggest that in hemophilic patients this type of hemorrhage may take an exaggerated form and progress to the point of producing serious obstruction to the air and food passages.

REPORT OF CASES

Case 1.—R. D., a white man aged 30, an insurance adjuster, admitted to the bronchoscopic ward of the Jefferson Hospital to the service of Dr. L. H. Clerf because of shortness of breath, coughing and inability to talk, had a serious argument two days previously with a recalcitrant customer and attempted to "talk the other man down" for most of the afternoon. He spoke in a loud tone for a total period of time of about four hours. That evening his throat felt a little sore, and the next day the soreness increased. He had some difficulty in swallowing and was somewhat short of breath. He attributed these symptoms to a mild respiratory infection, though he had no fever or any other constitutional symptoms. On admission to the hospital two days after the onset of the symptoms, he was having paroxysmal attacks of cyanosis and dyspnea. The mouth secretions had to be expectorated, since attempt to swallow caused a spill into the trachea followed by painful coughing.

The patient's temperature was normal, and mirror laryngoscopy showed the vocal cords immobilized in a position of adduction. The arytenoids and aryepiglottic folds were greatly swollen and dark, indicating the presence of a hemorrhagic process in the entire posterior larynx. There was no external swelling of the neck or tenderness on palpation. Because an acute infection was thought to be responsible, he was given penicillin and fluids intravenously. The patient had not told the physician that he was hemophilic. The hemoglobin on admission was 84 per cent and the red blood cell count 4,000,000.

Three hours after admission it was necessary to perform a tracheotomy. A number 5 tracheotomy tube relieved the dyspnea, but the tissues which surrounded the wound continued to bleed actively for several days. Repeated interrogation then elicited from the patient the written statement that he was hemophilic. This was later confirmed by other members of his family, who said that he and one brother had had in the past several episodes of bleeding requiring transfusions. Studies of his blood revealed a venous clotting time of three and one-half hours (glass tube) and of five hours (collodion coated tube). The plasma prothrombin was 100 per cent of normal. The swelling of the tissues of the neck continued to increase until it reached the appearance illustrated in figure 1.

Between June 3 and June 17, 1945 the patient received the following intravenously:

Isotonic plasma, four infusions of 500 cc. each. Citrated whole blood, six infusions of 500 cc. each and one infusion of

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From the Departments of Laryngology and Medicine, Jefferson Medical College and Hospital.

[1] Clerf, L. H.: Personal communication to the authors.

1,500 cc. Red blood cell suspension, four infusions of 1,000 cc. each and one of 500 cc. A total of 11,000 cc. of blood or blood substitutes was given. By the fourth day after the tracheotomy the neck began diminishing in volume, and by the seventh day some air was passing through the larynx. On the tenth day the tracheotomy tube was corked, and on the eleventh day the tube was removed. Healing of the tracheotomy wound was unusually slow; by July 13 the lips of the wound were still apart. Bleeding did not stop permanently until twenty-three days after the wound was made.

Case 2.—N. F., a man aged 31, Italian, a laborer, known to be hemophilic for twenty years, reported to work feeling well on Jan. 12, 1943. A new man was assigned to work with him on a long machine and, since he was inexperienced, required frequent directions. Because of the great din in the shop the patient had to shout his directions to him to be clearly heard at the other end of the machine. This shouting continued off and on for about three hours, when he began to feel some soreness in the throat and difficulty in swallowing. He then stopped the shouting but gradually became hoarser and felt his neck swelling. When he left the plant in the afternoon he could hardly speak. At 2 a. m. he was awakened with a sore throat and felt that his neck was more swollen. He had a sensation of a lump on either side of the throat. He was admitted to the medical ward of the Jefferson Hospital, service of Dr. H. A. Reimann, the day following the onset of the disease. He had a slight leukocytosis and a temperature of 100 F. The venous blood coagulation time was two hours and twenty-five minutes (glass tube); the hemoglobin, red cell and platelet count were normal. Laryngologic examination revealed what appeared to be an acute laryngitis and swelling in the region of the epiglottis. This swelling was so great that it was considered wise to introduce a nasal feeding tube at this time. Roentgenologic examination of the neck showed a soft tissue density between the lower mandible and the hyoid bone. This soft tissue mass was apparently depressing the hyoid bone and also infringing on the air space of the hypopharynx. The clinical impression was hemophilic hematoma of the soft tissues of the neck in the region of the epiglottis. Because there had not been much loss of blood, a transfusion of 500 cc. of two day old citrated blood was given after removing 500 cc. of blood from the patient. He was given a liquid diet and cautioned not to talk. Improvement began about a day after the transfusion, much of the tenderness, hoarseness and swelling disappearing gradually. Simple inspection of the throat at this time revealed large hemorrhagic areas about the posterior pillar of the tonsils, which had not been present at the time of admission and probably represented a dissecting spread of the extravasated blood.

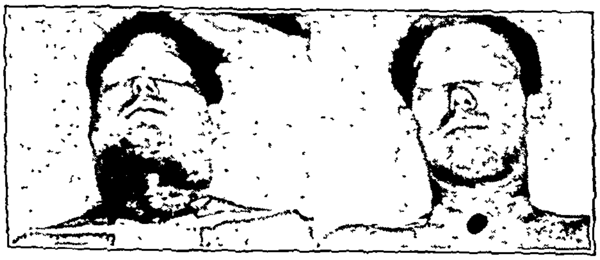

Fig. 1 (case 1).—Left, appearance when the swelling of the neck was at its highest. Right, appearance ten days later.

COMMENT

These 2 patients demonstrate perhaps two different degrees of involvement of the larynx and adjoining tissues by edema and hemorrhage. The cause of the bleeding could be traced in both instances to overuse of the voice. That hemorrhage so initiated may, in this location, constitute a serious threat is probably not generally recognized. It is understandable that, at first sight, an infectious process may seem to be the cause of the disorder. The lack of serious constitutional symptoms and, as in case 1, the absence of fever indicate a noninfectious disorder.

Deep seated hematomas in the neck region leading substantially to the same problem encountered in these patients have been described following dental extractions in the hemophilic. Endicott, Mitchell and Qvist[2] reported asphyxia and death in a hemophilic due to massive hemorrhagic infiltration of the floor of the mouth. These authors traced the path of the extravasation of blood in their patient, who had had an extraction of a second right lower molar tooth and died sixty-six hours later. According to Endicott and his co-workers[2] the blood extravasated from the floor of the mouth and dissected downward through the base of the tongue in the plane above and behind the mylohyoid muscle and the hyoid, thus reaching the submucous tissues of the aryepiglottic region and thence the submucosa of the larynx.

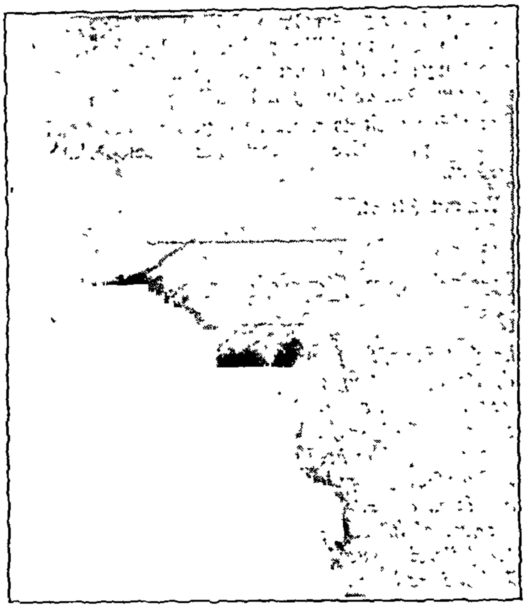

Fig. 2 (case 2).—Lateral view one day after admission. Note downward displacement of hyoid bone by soft tissue mass below the mandible.

In instances similar to the case reported by Endicott and his co-workers[2] the hemorrhagic and traumatic nature of the infiltration into the deep cervical tissues is clear. When the hemorrhage, however, starts in the deep tissues themselves, as for example in a muscle mass, the true nature of the process may not at first be evident. Hematomas in the larynx may result from violent abuse of the voice, as in singing, shouting or screaming.[1] These hematomas, which are not absorbed as a rule, become, if left alone, organized into a small firm tumor that has been called a fibroangioma.[3] A form of hemorrhagic involvement of the larynx following violent and prolonged use of the voice has been described as "hemorrhagic laryngitis," though inflammation may or may not be present. The condition has been observed in hemorrhagic disorders[3] but, so far as we know, not to the alarming degree noted in our 2 patients. The cases herein reported demonstrate that such excesses may lead to serious complications in a hemophilic person and that the disorder may not necessarily be a complication of an infectious state. Whether the hemorrhage starts in the vocal cords themselves or spreads into them from adjoining structures is difficult to determine. It is possible that the hemorrhage actually comes originally from the accessory muscles of the larynx, which during loud and prolonged shouting would be put under excessive strain.

It is wise, therefore, to include among the recommendations for the management of hemophilic patients that they refrain from excessive or strenuous use of the voice. This caution is in line with the usual recommendations against muscular excesses of any type in these patients. It is likewise important to bear in mind that a "hemorrhagic laryngitis" in a man may be a manifestation of a congenital or acquired disorder of hemostasis. Whenever possible, if the patient is hemophilic a small citrated blood transfusion should be given early. This would check the bleeding, prevent the spread of the hemorrhage and thus render a tracheotomy (with its attending risks in a hemophilic patient) unnecessary.

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[2] Endicott, C. L.; Mitchell, J. H., and Qvist, George: Asphyxia Following Dental Extraction in a Hemophiliac, Brit. M. J. 2:34 (July 11) 1942.

[3] Jackson, Chevalier, and Jackson, C. L.: The Larynx and Its Diseases, Philadelphia, W. B. Saunders Company, 1937.

SUMMARY

1. In 2 hemophilic patients hemorrhage in and about the larynx and adjoining structures followed loud and prolonged shouting. In 1 hemophilic patient asphyxia was prevented by tracheotomy; in the other the spread of the process was apparently arrested early by a blood transfusion.

2. Hemophilic patients must be cautioned not to abuse their voices as a preventive against the development of these complications.

1025 Walnut Street.

Council on Foods and Nutrition

If the full benefit of any public health measure is to be realized, its application must be widespread and continuous. There are many indications that interest in and use of iodized salt by the medical profession and the public is waning to a point where the public health may suffer as a result. In order that the benefits of regular usage of an iodine containing salt may be pointed out once again and the importance of the need for a renewal of interest stressed, Dr. Kimball has kindly prepared the following review of the subject at the request of the Council. This has been authorized by the Council for publication.

George K. Anderson, M.D., *Secretary.*

IODIZED SALT FOR THE PROPHYLAXIS OF ENDEMIC GOITER

O. P. KIMBALL, M.D.
Cleveland

It is necessary again to review the problem of goiter prophylaxis. There are ample data proving that endemic goiter can be prevented and simple, practical methods of prevention are known. The present need is to place this important public health problem under the proper authority so that it will be continued generation after generation.

The prevention of endemic goiter in man on a large scale was begun in 1916. This research was started through the public schools in Akron, Ohio, by Marine and Kimball and was described in detail at that time.[1] By 1920 it had been shown most convincingly that endemic goiter in adolescent girls could be prevented by keeping the thyroid saturated with iodine. From 1920 to 1924 many cities both in the United States and abroad were carrying out parallel programs for the prevention of goiter.

During these same years an improved method for determining minute quantities of iodine was developed, and by 1924 the water in our endemic goiter regions had been analyzed. In Michigan analyses were made of food and water throughout four counties diagonally across the state, namely Houghton, Wexford, Midland and McComb, and the resulting data were used as representative of conditions throughout the state. Final conclusions were that the amount of iodine in the water supply is an accurate index to the food iodine found in that section.[2]

The iodine content of the water in Houghton County was found to be "nil" and 64.4 per cent of all the school children in this county had distinct thyroid enlargement or simple goiter. In Wexford County the iodine content was 0.5 part per billion and the incidence of goiter was 55.6 per cent. In Midland the iodine content was 7.3 parts per billion with the incidence of goiter 32.7 per cent and in McComb County, where the iodine content was the highest, namely 8.7 parts per billion, the incidence of goiter was only 26 per cent. In these counties there were 65,537 children examined and the incidence of simple goiter was 38.6 per cent. This was considered the average for the state of Michigan. The results of this survey showed beyond a doubt that there is a direct relationship between the scarcity of food iodine and a high incidence of simple goiter.[2]

The Michigan State Department of Health and the Michigan State Medical Society made the first organized effort to prevent goiter by the use of iodized salt.[3] The salt producers agreed to make a table salt containing potassium iodide 0.02 per cent. The wholesale grocers agreed to handle, as far as possible, only iodized salt for table use. The cost of this iodine was borne equally by the producers and by the wholesale grocers, so that the cost to the consumer was the same as for the ordinary table salt. Neither the manufacturer nor the wholesale grocer was to advocate the use of iodized salt or to advertise it in any way. Promotion was left entirely to the state department of health and to the medical profession. Lectures, newspaper articles, radio talks and placards in every school explained briefly the thyroid gland, its function and chemistry. The dependence of normal thyroid function on iodine was stressed, and the deficiency of iodine as the sole cause of endemic goiter was repeatedly emphasized. This campaign resulted in the use of iodized salt in approximately 75 per cent of the homes in Michigan beginning in May 1924.

As was expected, there were a few papers written by medical men expressing anxiety and fear lest the use of iodized salt produce toxic goiters. Because of these few articles, which made some startling claims, it was necessary in 1927 and 1928 to make a resurvey throughout the same counties in Michigan, both to learn the efficiency of iodized salt and to determine any harmful effects from its continued use.[2] It was necessary to study adults with goiters to see if any had become toxic from the use of iodized salt during the previous four years. To this end the county medical society in three counties in Michigan and the state health department arranged clinics in which 1,229 adults with long-standing goiters were studied. Of this number 4.1 per cent of those who had used iodized salt continuously for four years had developed symptoms of toxic goiter, while 55.5 per cent of those who had purposely avoided its use were found to have toxic goiter. Stated briefly, the use of iodized salt was a very efficient and practical method of goiter prophylaxis and found to be entirely safe.[2] This survey also included a study of over 50,000 children in the same schools where four years previously we had examined 65,000. The results were as follows: In Wexford County the incidence of goiter had dropped from 54.6 per cent in 1924 to 17.2 per cent in 1928; in Midland County the incidence had decreased from 32.7 per cent to 8.8 per cent; in the city of Grand Rapids, where in 1923 the incidence of goiter was 30 per cent, in 1928 it was down to 9 per cent. Throughout this resurvey not a child was found who showed the slightest ill effect from the use of iodized salt.

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[1] Marine, David, and Kimball, O. P.: The Prevention of Simple Goiter, J. Lab. & Clin. Med. 3:40-46 (Oct.) 1917; The Prevention of Goiter in Man, Arch. Int. Med. 25:661-672 (June) 1920. Kimball, O. P.: The Prevention of Simple Goiter in Man, Am. J. M. Sc. 163:634 (May) 1922.

[2] Kimball, O. P.: The Efficiency and Safety of the Prevention of Goiter. Olin, R. M.: Iodine Deficiency and Prevalence of Simple Goiter in Michigan, Michigan Health Rep. 21, May 10, 1924; J. A. M. A. 82:1328 (April 26) 1924.

[3] Kimball, O. P.: Endemic Goiter and Public Health, Am. J. Pub. Health 18:587 (May) 1928.

Even though it had been only four years since our original program of education, it was necessary to campaign again throughout the state, emphasizing the good results and the safety of this prophylactic measure. Again in 1934 and 1935 the school physicians were reporting an increase in the number of small colloid goiters in children. Simultaneously the wholesale grocers reported a decrease in the percentage of iodized salt consumed in Michigan. There was a renewal of the fear of using iodized salt and a return of the same question—why use a "medicated" salt? This question had been answered in every published article on goiter prevention and every school placard throughout the state, but this type of education seems to last for only a few years and each generation has to be told again.

The last survey was made in 1936 and included the same four counties of Michigan and the city of Grand Rapids. In this study 61,429 children were examined. The incidence of goiter had dropped from the original figure of 38.6 per cent in 1924 to 8.2 per cent. Among those using iodized salt regularly the incidence of goiter was only 2.88 per cent. A valuable study was possible in the comparison of two cities, Houghton and Calumet, in Houghton County.[4] These two cities were only 30 miles apart; consequently the natural factors determining goiter would be the same. However, the percentage of goiter in Houghton High School was 12.12 and in Calumet High Schools 28.72. Calumet is a mining town, and approximately two thirds of the families were on relief during the years 1932 to 1935 and only noniodized bag salt was furnished to families on relief. In the period of three years with the only source of food iodine closed to the homes on relief, goiter was seen to be proportionately as prevalent as ever.

The incidence of goiter among the school children of Cleveland in 1924 was 31 per cent. In this community, however, the prevention of goiter and especially the generalized use of iodized salt had been frankly and repeatedly criticized. There was such a widespread fear of the so-called "dangers of iodized salt" that less than one half of the homes in Cleveland ever used it. In 1937 a resurvey showed the total incidence of goiter to be 18.5 per cent. Among those using iodized salt regularly it was 7.7 per cent, and among those not using it at all the incidence of goiter was 30.7 per cent, or practically the same as in 1924, before any preventive measures had been introduced.[5]

At present, 1945, ten years have elapsed since the last organized study and campaign for goiter prevention. No such study or campaign is being considered at present. The only information available is in the clinical studies and personal findings of physicians interested in the prevention of goiter. During the past two years, in examining school children in Detroit and Cleveland, I have found numerous small or moderate sized goiters. These were the typical hyperplastic thyroids or colloid goiters found so frequently among adolescent children of this area before prophylaxis was started. In each case they definitely were not using iodized salt and had not used it for one or more years. In some instances there was the same prejudice against "medicated" salt, while in the majority of cases they had just forgotten to demand it. Several families had decided that, since nothing had been heard about goiter prevention for several years, they concluded the "epidemic" was passed and therefore purposely used plain salt.

Complete information on the amount of iodized and plain salt used each year is not available. The only information obtainable is the statement by the salt producers that the percentage of iodized salt consumed has gradually decreased during the past four or five years.[6]

In spite of the many surveys in this country and abroad there appears to be no cumulative knowledge among the general population about the cause and prevention of endemic goiter. Furthermore, there is an abundance of data on the efficiency and safety of iodized salt as the means of prophylaxis; yet the consumption by the general public gradually decreases unless repeated campaigns are made by state health departments to encourage its use.

After the last survey in Michigan in 1936 it was strongly urged that each state where goiter is endemic should make a similar campaign of education every ten years.[5] No such effort has been put forth by a single state.

The ideal method would be the same form of goiter prevention the people of West Virginia enjoyed until 1900 or, more accurately, until the salt companies of Ohio and Michigan produced a refined table salt and promoted its sale throughout the state.[3] Prior to that date there was no endemic goiter in West Virginia, but by 1922 the evidence of endemic goiter was as high as in the Lake Superior region: around 60 per cent of adolescent girls had goiter. According to records and information from the older physicians there were, prior to 1900, no toxic adenomatous goiters and only rarely did they encounter a case of toxic diffuse goiter. There had been no effort to prevent goiter in this section, but fortunately the only salt was a natural, unrefined salt commonly spoken of as a coarse brown salt. In 1924 analyses showed that this unrefined salt contained iodine equivalent to 0.01 per cent potassium iodide.[3] It was this natural unrefined salt of the Kanawa River Valley in West Virginia, with the perfect record of prevention of endemic goiter, which set the pattern for the so-called iodized salt.

My recommendation would be that the American Medical Association, the American Public Health Association and the Federal Food and Drug Administration cooperate to give the entire country a natural salt containing 0.01 per cent potassium iodide or its equivalent. The term "iodized" should be eliminated at once and emphasis be placed on the use of a whole salt or natural salt to prevent food deficiencies. The need is for only one kind of salt and this standardized so that it contains the important food elements which are found in the natural unrefined salt. The "prevention of endemic goiter" will then be as nearly completed as any public health measure can ever be.

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[4] Kimball, O. P.: Twenty Years in the Prevention of Goiter (1916-1936), Ohio State M. J. **35**:705 (July) 1939.

[5] Kimball, O. P.: The Prevention of Goiter in Michigan and Ohio, J. A. M. A. **108**:860 (March 13) 1937.

[6] Personal communications to the author.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 12, 1946

DECOMPRESSION SICKNESS

Students of aviation in World War II have focused their attention on a series of symptoms which may manifest themselves at altitudes as low as 35,000 feet and which are unrelated to such obvious causes as lack of oxygen, ear and sinus trouble or intestinal pains. These symptoms, grouped under the term "decompression sickness," vary from a mild rash, hyperesthesias, anesthesias or tightness in the chest to more severe manifestations such as excruciating pain about the joints, severe cough, convulsions, paralysis and syncope. These symptoms are well known to divers and caisson workers and are referred to by them as "bends," "chokes," "itch" and "staggers." Compressed air illness is due to bubble formation in the blood and body tissues; symptoms of caisson disease can be readily alleviated by recompressing the patient and then decompressing more slowly. Experience at simulated high altitudes likewise indicates that recompression to lower altitudes (even a change from 35,000 to 25,000 feet) will also instantly relieve bends and chokes but that on immediate reascent the pain will reappear in exactly the same place.

According to Harvey[1] the tendency for bubbles to form depends on two factors: on gas dissolved and on pressure in the liquid. He demonstrated in experiments that bubbles must arise from gas nuclei sticking to or forming on or within the endothelial linings of the vascular system or extravascular spaces; only when they have enlarged to the point of instability do they pass into the blood stream. Harvey performed experiments on cats in which the animal was anesthetized with pentobarbital sodium. Its abdomen was opened and the viscera were pushed aside, thus exposing a considerable length of the postcava. When the cat was placed in a horizontal position in the altitude chamber and well illuminated, observations could be readily made through the glass observation ports, and bubbles of 0.2 mm. diameter could be seen within the veins. The altitude maintained in the chamber was about 45,000 feet. With the animal at rest, bubble formation was rarely observed in the postcava. However, if the hind legs of the cat were stimulated vigorously, bubbles from limb veins could be observed moving up the postcava, sometimes within five seconds of stimulation. If only one leg was stimulated, the bubbles formed in the leg appeared in veins draining that leg only. This important discovery of the effect of muscle contraction on appearance of bubbles was first made, according to Harvey, by Whitaker, Blinks and their collaborators and has its practical application in the well recognized fact that straining movements and exercise among aviators is the most important predisposing factor for the development of bends and chokes. Harvey points out that muscular exercise must have a beneficial effect in preventing bubble formation by virtue of the vasodilatation and opening of closed capillaries in muscle tissue as well as of the increased circulation and hyperventilation necessary to remove carbon dioxide rapidly from the blood. The relative influence of these two opposing factors—the enlargement of gas nuclei by muscle contraction and the increased gas elimination due to similar activity—will determine how much and how strenuous the exercise can be. Actually, experience has shown that in man preexercise at ground level before ascent, even when combined with oxygen breathing, will completely prevent the appearance of decompression sickness and offers the most effective prophylactic treatment. In man the amount of oxygen breathing necessary has also been shown to depend on the extent of exercise at altitude. Numerous x-ray studies made in altitude chambers have disclosed the presence of air masses in joint cavities, in popliteal fat and in the fascia between muscles. All observers agree that air may be present in these regions without the pain of bends. Gas in popliteal fat and muscle fascia appears most likely to cause pain. Another theory of the cause of pain in bends refers it to the pain of muscle contraction in absence of oxygen described by Sir Thomas Lewis. The fact, however, that local application of pressure or even a blocking of the blood flow by tourniquet above the painful region will relieve bends is contrary to the intravascular embolism theory.

Nervous symptoms are more difficult to analyze. They could be due to gas blocking capillaries of the central nervous system or to gas in nerve sheaths exerting pressure on nerve trunks. Whatever the genesis of the various symptoms, the etiology of decompression sickness has been demonstrated to be due to bubble formation.

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[1] Harvey, E. N.: Decompression Sickness and Bubble Formation in Blood and Tissues, Bull. New York Acad. Med. **21:** 505 (Oct.) 1945.

BRITISH PROPOSALS FOR SEX EDUCATION

Education on the biology of sex is still limited to but a few of our population. In an address to the annual general meeting of the British Eugenics Society Bibby[1] presented his philosophy of sex education. He outlined briefly the transfer in 1942 of the major part of the work of the British Social Hygiene Council to the Central Council for Health Education, thus giving official support to sex education. He quoted figures indicating that sex education lectures had been given during 1943 and 1944 to audiences totaling approximately 68,000 persons, plus an additional 230,000 attending meetings dealing with venereal diseases. This he describes "quantitatively—fairly satisfactory." Bibby summarized the objectives of sex education as "preparation to live a joyous, well planned and fruitful life." He discounted the value of mortality produced by threats of fire and brimstone. He does not believe that the teaching of biologic facts will of itself assure satisfactory conduct. "Behavior is dependent upon ideals and inspiration as well as upon factual knowledge and intellectual understanding." Here is his philosophy of sex education and its purposes: "That our people should grow up learning the appropriate facts in the best possible way; that their general attitude to sex should be a completely healthy one; that they should draw up for themselves a code of conduct after careful consideration of all the issues involved and should endeavor to behave according to this rationally determined code; and that they should react to the behavior of others with sympathy, tolerance and charity, but without spineless acquiescence in a code inferior to their own."

Bibby places much stress on the belief that children need not be forced but should be introduced to knowledge as fast as they are ready for it; this procedure is generally accepted in the United States and has been well set forth by Swift.[2] His views on the teaching of facts relating to courtship and marriage are also along the general lines accepted in the United States and embodied in such standard works as those of Frances Bruce Strain[3] as well as by numerous other writers, including Rice,[4] Dickerson[5] and Hutton.[6]

Attention is called to the absence of qualified teaching personnel and the necessity for training youth leaders. In closing, Bibby calls for research as a basis of sex education and particularly for a greater amount and degree of accuracy in our conception of the sex knowledge of the people we are trying to educate and of the relative efficiencies of the various technics in sex education. Lastly, he believes that "our scheme of sex education must not be drawn up in vacuo, as if sex attitudes and sex behavior were things fixed and immutable. If it is to be really potent, it must be sex education for our particular social setting." Britain, it would appear, faces precisely the same problems in sex education as does the United States and faces them in just about the same manner.

PRESIDENT TRUMAN SIGNS NEW VETERANS LEGISLATION

On January 3 President Truman signed the bill creating a department of medicine and surgery in the Veterans Administration which was analyzed in THE JOURNAL of January 5, page 38. On the same day representatives of the Veterans Administration and of various organizations interested in the care of the veterans appeared for a conference with the President, the chief point at issue being the determination as to whether or not preference could be given in the selection of medical personnel to men who had had military service. So seriously did President Truman consider this factor that he addressed a letter specifically to General Bradley urging that such preference be given. As might have been expected, representatives of the Civil Service were opposed to the appointment of physicians in higher grades without regard to Civil Service, but General Bradley emphasized the importance of such exceptions if the Veterans Administration is to be supplied with the physicians necessary to carry on its work. Major Gen. Paul R. Hawley was immediately appointed Acting Surgeon General in accordance with the new legislation.

For the first time it will be possible in the administration of medical care to veterans to utilize the services of highly qualified physicians and surgeons and to establish an organization with top ranking specialists in each medical field. The administrator will himself prescribe the qualifications necessary for appointment as a physician, dentist or nurse and this without regard to Civil Service requirements.

The new legislation, with minor modifications, was endorsed by representatives of the medical profession, including official representatives of the American Medical Association.

It is hoped that civilian physicians will do their utmost to make the Veterans Administration effective in rendering a high quality of medical service. For the first time the medical institutions of the administration will become qualified teaching institutions with residencies in the various specialties, thus becoming fully integrated with the system of medical care which has brought medical service of the United States to the highest level available anywhere in the world.

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1. Bibby, Cyril: Sex Education: Aims, Possibilities and Plans, Nature 156:412 (Oct. 6), 438 (Oct. 13) 1945.
2. Swift, Edith Hale: Step By Step in Sex Education, New York, Macmillan Company, 1938.
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5. Dickerson, Roy E.: So Youth May Know, New York, Association Press, 1932; Dickerson, Roy E.: Growing into Manhood, New York, Association Press, 1933.
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GENERAL PARRAN ADDRESSES HIS OFFICERS

Officers of the United States Public Health Service, including apparently all reserve officers and those who hold appointments in the emergency hospital units that were established during the war, received last week a mimeographed letter, dated December 10, which created amazement and consternation. Here follows this communication:

> *To:* All officers of the Public Health Service
> *Subject:* The National Health Program
>
> Enclosed is a copy of House Document No. 380, which is the full text of President Truman's message to the Congress on a national health program, a subject of the highest importance to every citizen. The message contains a comprehensive analysis of the health problems of the country and recommendations as to the pattern of legislation to deal with them.
>
> It is a source of particular satisfaction to all of us who labor for the public health advancement that this should be the special subject of a Presidential message. For the first time we have the major elements of a national health policy officially stated in comprehensive terms. This has been a goal of all public health workers for many years, and the enunciation of such a policy by the Chief Executive gives the Public Health Service definite objectives for its future work.
>
> On the same day as the message was delivered Senator Wagner introduced (for himself and Mr. Murray) S. 1606, and Representative Dingell introduced H. R. 4730, designed to implement the proposals of the President. In addition, several bills are pending in the Congress dealing with special phases of the President's legislative program. These include the hospital construction bills, the national mental health bills and the stream pollution bills, each of which would impose substantial additional responsibilities on the Public Health Service.
>
> The appropriate executive agencies of the government have been specifically instructed by the President to assist in carrying out his legislative program as presented to the Congress on September 6. The President wrote to the administrator of the Federal Security Agency on October 4 requesting him "to take primary responsibility for legislative measures necessary to carry out the part of my message (Sept. 6, 1945) outlined in section 21 concerning a national health program to provide adequate medical care for all Americans and to protect them from financial loss and hardship resulting from illness and accident."
>
> Every officer of the Public Health Service will wish to familiarize himself with the President's message and will be guided by its provisions when making any public statement likely to be interpreted as representing the official views of the Public Health Service.
>
> THOMAS PARRAN, Surgeon General.

If the fourth and fifth paragraphs of this letter say what they seem to say, the President of the United States has instructed the executive agencies of the government to get behind his legislative program for the extension of health. The Surgeon General of the U. S. Public Health Service goes into action, ties the Wagner-Murray-Dingell bill right into the program and at least hints to his officers that they had better be careful about making any public statements with regard to the message.

Many of those addressed in this instance are physicians in the private practice of medicine in the United States. They volunteered their services in the formation of hospital units to aid the people of this country in an emergency; they continued their membership in the Reserve of the Public Health Service after the war itself ended because it seemed to be desirable to have an emergency service available. If, however, men are to be directed in their thinking or muzzled in their speaking incident to their desire to be of service to the health of the nation, their rights as American citizens will have to prevail. Reserve officers will have to consider seriously whether or not they wish to maintain any official connection with such a federal agency. Incidentally, it might have been better if General Parran had, in these final two paragraphs, said in shorter and clearer sentences exactly what he meant to convey.

Current Comment

AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY

In October 1920 appeared the first issue of the *American Journal of Obstetrics and Gynecology,* successor to a periodical founded in 1868 as the *American Journal of Obstetrics and Diseases of Women and Children.* The issue for December 1945 marks the twenty-fifth anniversary of the new publication. During all of this period it has been under the editorship of Dr. George W. Kosmak, who marks the twenty-fifth anniversary by an editorial which indicates some of the tremendous progress that has been made in the field over that period:

> Knowledge of the physiology of reproduction has advanced greatly, with the attainment in particular of a knowledge of the role of the endocrines, the morphologic development of the embryo and the control of uterine contractility. Gynecologic and obstetric pathology has become an essential part of the personal knowledge of each practitioner of the specialty. The widespread use of blood and plasma has completely altered the outlook in major surgical operations and in obstetric hemorrhage. The sulfonamides and penicillin have revolutionized the treatment of infections. Radiation has been further developed in the treatment of cancer. Finally, the enlistment of the efforts of the practitioner of obstetrics in a great cooperative study has produced a phenomenal improvement in obstetric mortality and morbidity.
>
> Of interest is the fact that the mechanical phases of gynecologic treatment show little change, while the development of medical and physical methods of therapy and diagnosis has assumed such great prominence. While operative technics have been developed and expanded, the scalpel today is less in evidence than the test tube and the experimental or the research laboratory.

Attention is called also to the extent to which governmental funds are now being used for the extension of maternal and infant care. Dr. Kosmak points out that "It is understandable that the fields of obstetric and pediatric practice should be the first to receive such attention" because of the sentimental factors involved; these special fields may, however, serve simply as experimental areas and thus be the forerunner of the extension of government activity in other branches of medicine. THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION tenders to the *American Journal of Obstetrics and Gynecology* warm congratulations on twenty-five years of excellent service to the advancement of obstetrics and gynecology.

MEDICINE AND THE WAR

NAVY

PROGRAM FOR TRAINING OF SPECIALISTS

Vice Admiral Ross T. McIntire, chief of the Bureau of Medicine and Surgery, recently announced the establishment of a long term program for the training of specialists, involving the designation of nine large naval hospitals as special centers of instruction. The program will make available to medical officers a complete term of specialization training comparable to the best obtainable in civil life. All of the recognized specialties will be taught, including anesthesiology, dermatology and syphilology, internal medicine, neurosurgery, obstetrics and gynecology, ophthalmology, orthopedic surgery, otolaryngology, pathology, pediatrics, plastic surgery, psychiatry and neurology, radiology, surgery and urology. The nine postgraduate teaching centers will be set up at the naval hospitals at Chelsea, Mass., St. Albans, N. Y., Philadelphia, Bethesda, Md., Great Lakes, Ill., San Diego, Long Beach and Oakland, Calif., and Seattle.

The board of honorary consultants to the Medical Department of the Navy who have actively cooperated in the formulation of the plans and who will assist in their development, are:

Dr. Donald C. Balfour, director of the Mayo Foundation and Clinic, Rochester, Minn.

Dr. Richard B. Cattell, chief of the surgical section, Lahey Clinic, Boston.

Dr. Edwin J. Cohn, department of physical chemistry, Harvard Medical School, Boston.

Dr. Frank P. Corrigan, American ambassador to Venezuela.

Dr. Walter E. Dandy, professor of neurosurgery, Johns Hopkins University Hospital, Baltimore.

Dr. Frank H. Lahey, director of the Lahey Clinic, Boston.

Dr. Oswald S. Lowsley, director of the department of urology, James Buchanan Brady Foundation, New York.

Dr. James E. Paullin, professor of clinical medicine, Emory University School of Medicine, Atlanta, Ga.

Dr. W. Calhoun Stirling, urologist, Washington, D. C.

Dr. Edward A. Strecker, professor of psychiatry, University of Pennsylvania School of Medicine, Philadelphia.

Dr. Meyer Wiener, professor of ophthalmology, Washington University, St. Louis.

Instructors will include not only the regular staffs of the nine special training centers but also members of the Naval Reserve Medical Corps who are prominent in their various fields of medicine and surgery. Present plans call for a definite period of training for the young doctor who enters the Navy on his graduation from medical school. This period would cover one year's internship, one or more years of residency training, two years of sea or foreign shore duty and a definite period of intensive work in this country in that field of medicine which the officer has chosen and which has been approved by the central advisory group.

Internships and residency training will continue to be given at all naval hospitals which are properly accredited, with the more advanced teaching being offered at the nine specialization centers.

NAVAL MEDICAL OFFICERS PRESENTED WELLCOME AWARD

The Wellcome Award, established by the late Sir Henry Wellcome, was recently presented to naval personnel for the sixth consecutive year. Joint recipients of the award were Capt. Joseph S. Barr (MC), U.S.N.R., Newton Center, Mass.; Capt. R. H. Draeger (MC), U.S.N., San Francisco, and Comdr. W. Warren Sager (MC), U.S.N.R., Washington, D. C., for their paper "Solid Blast Personnel Injury," which was selected by the Association of Military Surgeons as the best submitted in the annual competition. The presentation of the honorarium and scroll accompanying the award was made by Capt. Robert E. Duncan (MC), U.S.N., medical officer in command at Bethesda. A gold medal also normally goes to the winner, but the medal has not been cast since the beginning of the war, the die having been destroyed in the London blitz.

Captain Barr is in charge of the orthopedic service at Bethesda, and Captain Draeger is executive officer of the Naval Medical Research Institute. Commander Sager, now on terminal leave, formerly was attached to the surgical staff at Bethesda.

NAVY AWARDS AND COMMENDATIONS

Captain Raymond Webster Hege

A Gold Star in lieu of a second Bronze Star was posthumously awarded to Capt. Raymond Webster Hege, Washington, D. C. The citation accompanying the award was "for meritorious achievement as force medical officer attached to the staff of the commander, First Carrier Task Force, embarked on the U. S. S. *Bunker Hill,* in connection with operations against enemy Japanese forces in the Pacific War Area from Dec. 20, 1944 to May 11, 1945. Responsible for the health and well being of the officers and men of his task force, Captain Hege personally attended the staff and flag allowance personnel on board the *Bunker Hill*; maintaining them at peak of battle efficiency during extended operations against the Japanese Empire, which included the first Tokyo raids, the support of landings on Iwo Jima, strikes against Kyushu and the Kure naval base, support of the Okinawa landings and an engagement with major units of the Japanese fleet on April 7, 1945. Directing all activities under his control with dependable judgment and resource, he worked tirelessly and with brilliant initiative, constantly improving the standards of health within the force and, by his thorough understanding of the peculiar mental and physical needs of men functioning under the strain of continuous combat, skilfully insured the sound health of all force personnel during a prolonged period of intensive operations. By his outstanding professional ability, cool courage and gallant acceptance of extreme danger and hardship, Captain Hege served as an inspiration to all on board the *Bunker Hill,* and his resolute conduct throughout upheld the highest traditions of the United States Naval Service." Dr. Hege graduated from the University of Cincinnati College of Medicine in 1927 and entered the service June 15, 1926. He was killed in action May 11, 1945.

Captain Charles L. McCarthy

A letter of commendation was recently presented to Capt. Charles L. McCarthy, formerly of Washington, D. C., which read as follows:

"Through the courtesy of the Bureau of Medicine and Surgery, U. S. Navy, Capt. Charles L. McCarthy (MC), U.S.N.R., was made available to the Surgeon General's Office, U. S. Army, for work with the Combined Intelligence Objectives Subcommittee. Captain McCarthy was subsequently attached to the Medical Intelligence Branch of the Office of the Chief Surgeon, ETOUSA, to carry out the mission assigned.

"Captain McCarthy's wide general knowledge in the field of medicine and related subjects, and his fluent command of German made his service invaluable to the Combined Intelligence Objectives Subcommittee group. He was placed in charge of the advance section of the Medical Intelligence Branch and thus directed much of the field work carried out, especially that part dealing with uncovering and exploiting targets of opportunity. In addition, he took an active part in the actual investigations.

"Captain McCarthy demonstrated unusual ability and energy and was tireless in his efforts to seek out information. His congeniality and spirit of cooperation enabled him to work well with all the Army personnel with whom he came in contact. It is the desire of this office to express appreciation to Captain McCarthy for his excellent services, and to the Bureau of Medicine and Surgery for making him available for this work."

Dr. McCarthy graduated from Johns Hopkins University School of Medicine, Baltimore, in 1916 and entered the service June 6, 1942.

Lieutenant Commander George William Fox

The Navy Cross was posthumously awarded to Lieut. Comdr. George William Fox, Milwaukee, "for extraordinary heroism as medical officer attached to the U. S. S. *Franklin* following an attack by enemy aircraft near Kobe, March 19, 1945. When his ship was turned into an inferno by an enemy air attack which started violent explosions and raging fires on board, Lieutenant Commander Fox unhesitatingly remained at his battle station in the below-decks sick bay and, despite the penetration of terrific blasts and fumes, steadfastly continued to protect his patients and minister to casualties until he himself succumbed to the dense, suffocating smoke. Lieutenant Commander Fox's valiant and self-sacrificing efforts on behalf of others, his superb courage and unfaltering devotion to duty in the face of grave peril were in keeping with the highest traditions of the United States Naval Service. He gallantly gave his life for his country." Dr. Fox graduated from Rush Medical College, Chicago, in 1931 and entered the service Aug. 17, 1942.

VETERANS

PLANS FOR MEDICAL CARE IN MICHIGAN AND KANSAS

"Home town care of veterans" for service connected disabilities, with free choice of physician, will be offered as a standard practice through an agreement announced by representatives of the Veterans Administration and the Michigan State Medical Society. A similar agreement which would entitle veterans with service connected disabilities to local hospital care for many types of cases also is under consideration, according to representatives of the Michigan Hospital Association.

The agreement will permit veterans to receive treatment and care from local physicians and hospitals. In many cases it will make it unnecessary for veterans to leave families, friends and family physicians to go to veterans' institutions distant from their homes.

Physicians providing service to veterans will be reimbursed through the Blue Cross Plan-Michigan Medical Service, which is a nonprofit prepayment organization established by the medical profession. Michigan Hospital Service, a nonprofit prepayment plan operated by Michigan hospitals, would handle payment for local hospital care provided to veterans under the contemplated hospital portion of the program. In turn, the actual cost to the Michigan Medical Service and Michigan Hospital Service will be repaid by the Veterans Administration. These two organizations are the Blue Cross Plans of Michigan, and similar nonprofit plans are in operation nationally.

Participants in the announcement of the new program in Michigan included Dr. R. S. Morrish, president of the Michigan State Medical Society; Rev. Dr. John Ernst, president of the Michigan Hospital Association; Dr. Stanley W. Insley, president of the Wayne County Medical Society; Guy F. Palmer, Veterans Administrator for Michigan; R. R. L. Novy, president of Michigan Medical Service, and William J. Griffin, president of Michigan Hospital Service.

"The Michigan State Medical Society already has approved this program, but Michigan Medical Service still must hold meetings with physicians throughout the state to invite their individual participation in the program."

"The Michigan Hospital Association also has approved a proposal for local hospital care and it is hoped that an agreement covering this portion of the program will be ready in the near future."

In practice, the program will work much like that by which the Blue Cross now provides hospital and medical services to more than 1,250,000 residents of Michigan. For treatment or care necessitated by service connected disability, the veteran may go to any doctor participating in the program. If it is a case of the type provided by the veterans' program, the Blue Cross will immediately be authorized to make payment for care. Veterans Administration offices will be opened near the Blue Cross headquarters in Detroit so that authorization of payments will not be delayed. Special provisions are planned for veterans of the women's services. Since they cannot be accommodated at present in all veterans' hospitals, it is expected that they will be entitled to local care for both service connected and nonservice connected disabilities.

The schedule of fees which will be paid to doctors already has been approved by the Veterans Administration. This schedule was completed recently after prolonged study by a special committee of the Michigan State Medical Society. Hospitals would be paid the actual costs of providing service under the projected program for hospital care.

The inception of the new veterans' medical and hospital service program occurred at a conference between representatives of Michigan veterans' organizations and of leaders of the Wayne County Medical Society under Dr. Insley some months ago. At this meeting it was suggested that the problem of providing care for veterans might readily be handled through the Blue Cross plans. Agreement on the principles to govern the proposed arrangement was worked out in subsequent meetings with General Bradley, General Hawley and other officials of the Veterans Administration, and details now are being completed.

Kansas

Dr. W. P. Callahan, president of the Kansas Medical Society, has made several trips to Washington conferring with Major Gen. Paul R. Hawley in an effort to come to an agreement with the Veterans Administration on ways in which the doctors of the Kansas Medical Society may provide some of the medical services for veterans of this state. On Friday December 7 Major General Hawley announced the completion of this program and as quickly as possible the plan will be placed in operation in Kansas. The veteran will be permitted to select a doctor of his own choice, who will give an examination to accompany an application for pension. The restriction on this selection rests only on geographic lines in that the veteran will select a doctor from the area in which he resides. According to the agreement with the Veterans Administration, physicians in Kansas may also give medical service, including surgery, for service connected disabilities under certain circumstances primarily if the nearest Veterans Administration hospital is filled. Also under the agreement is the provision that emergencies may be cared for in the community in which the veteran resides. Here again he will have selection of the doctor to do this work.

In return for this the Kansas Medical Society agrees to submit a list of names of doctors qualified to give general examinations and another list of doctors who are specialists in the various fields of medicine. These lists will be submitted to the Veterans Administration, which plans to set up offices near the Kansas Medical Society. Claims will be cleared through that office and then forwarded to the district office for payment. It is expected that this program will go into effect sometime during the month of January.

NATIONAL HOSPITAL FOR SPEECH DISORDERS

The National Hospital for Speech Disorders, New York, is under contract to the Veterans Administration to rehabilitate ex-servicemen with speech and voice disorders. The hospital is also on the list of approved institutions which veterans may attend under the educational provisions of the G. I. Bill of Rights. More than sixty veterans are already receiving treatment at the hospital. While the majority of the veteran-patients are stutterers, several suffer from aphasia caused by head wounds or from aphonia due to loss of the larynx.

ARMY

INVESTIGATE RELEASE SITUATION OF DOCTORS AND DENTISTS

Lieut. Col. Bolling R. Powell Jr. of the Legislative and Liaison Division of the War Department General Staff, and Col. Durward G. Hall, chief of Personnel Service of the Surgeon General's Office, recently departed for Europe to make an exhaustive investigation of the release of army doctors and dentists. A similar investigation was recently completed in the Pacific area.

Colonel Powell and Colonel Hall will determine the medical and dental strength now necessary for each theater so that all surplus professional officers can be immediately shipped out and either be assigned to replace doctors who are eligible for release or returned to civilian life. Another phase of the study will be the determination of the number of hospital beds needed to meet present conditions in the European theaters with the idea of releasing unnecessary beds.

PAMPHLETS FOR PATIENTS WITH PSYCHONEUROSIS

Under the title "What's the Score . . . in a Case Like Mine?" the War Department has issued War Department Pamphlet 20-35, which is given to patients discharged for psychoneurosis. It is a simple statement as to various forms of psychoneurosis, full of inspiration and uplift, with sound advice as to how the discharged soldier shall proceed in civilian life. Copies are available from the Superintendent of Documents, Government Printing Office, Washington, D. C., at ten cents a copy.

NEW COURSE ON CARE OF ARTIFICIAL LIMBS

A new course of instruction in the repair and maintenance of artificial limbs was recently inaugurated at the Walter Reed General Hospital, Washington, D. C., for the purpose of teaching every amputee how to take care of his own prostheses. First suggested by Col. Leonard T. Peterson, the Army's director of research on prosthetics, the program will deal with model limbs and various technical devices and will instruct the amputees in the working and maintenance of their prostheses.

POSTGRADUATE COURSE OF AMERICAN COLLEGE OF PHYSICIANS

A session of the Postgraduate Course of the American College of Physicians was held recently at Barnes General Hospital, Vancouver, Wash., under the direction of Col. Charles K. Berle, commanding officer of Barnes General Hospital. Some of the subjects covered during the meeting were rheumatic fever here and overseas, clinical observation in intestinal infections, massive dosage of penicillin in the treatment of bacterial endocarditis and the roentgenologist and antral gastritis.

ARMY SPECIALIZED TRAINING PROGRAM TO BE LIQUIDATED

According to a recent announcement from the War Department, medical students now in the Army Specialized Training Program, which is undergoing gradual liquidation, will continue training through the current fiscal year, ending June 30, with the future of the program depending on requirements for medical officers, which will be reconsidered at that time.

INSPECTION TOUR OF PACIFIC MEDICAL INSTALLATIONS

An inspection of Medical Department installations in the Pacific is now being made by Brig. Gen. R. W. Bliss, Assistant Surgeon General, Brig. Gen. William C. Menninger, director of Neuropsychiatry Consultants Division, and Dr. Eli Ginzberg, director of Resources Analysis Division. The trip will include stops at Honolulu, Guam, Shanghai, Chungking and Tokyo.

MERITORIOUS SERVICE UNIT PLAQUE

The Meritorious Service Unit Plaque was recently awarded to the 1263d S. C. U. Mason General Hospital, Brentwood, L. I., N. Y. During the period Dec. 1, 1944 to May 31, 1945 this unit performed its duties in a superior manner and demonstrated outstanding devotion to duty. Its accomplishments in the care and disposition of mentally ill patients are considered a noteworthy contribution in the field of military hospitalization and evacuation. Only through enthusiastic and unselfish devotion to duty could such high standards of service be attained. The accomplishments of this unit reflect great credit on itself and the military service. The unit and each of its assigned members are authorized to wear the Meritorious Service Unit Badge.

MALARIA RELAPSE RATE DECLINING

A recent announcement by the Army Medical Department discloses that the hospital admission peak for malaria relapses in the United States was reached in February 1945 with a total of approximately 6,000 cases and has been steadily declining since that time. During 1943, when men began to return from tropical theaters of operations in increasing numbers, the total number of hospital admissions for malaria relapse reached 5,275. By 1944 it had jumped to almost five times that number, 28,150, and in the first six months of this year the total was 30,420.

RETURNS TO SURGEON GENERAL'S OFFICE

Lieut. Col. M. E. Randolph, chief of the eye, ear, nose and throat section at Valley Forge General Hospital, Phoenixville, Pa., was recently transferred to the Office of the Surgeon General, Washington, D. C., to serve as chief consultant in ophthalmology to the Surgeon General. Before being transferred to Valley Forge General Hospital, Colonel Randolph was chief of the ophthalmology branch of the Surgeon General's Office. He will be replaced by Lieut. Col. Phillips Thygeson.

ARMY AWARDS AND COMMENDATIONS

Lieutenant Colonel Harold Lynn Wilson

The Legion of Merit was recently awarded to Lieut. Col. Harold Lynn Wilson, formerly of New York, "for exceptionally meritorious conduct in the performance of outstanding services as chief, surgical service, of the 11th Evacuation Hospital semimobile, from Aug. 15, 1944 to May 8, 1945." The citation continued "Lieutenant Colonel Wilson contributed immeasurably to the efficient operation of his unit in the care of battle casualties. Untiring in his efforts to improve constantly the service rendered to the wounded, his usual day was one of eighteen to twenty hours of constant activity during the active phase of combat. Under his supervision large numbers of battle casualties received rapid and efficient treatment. Lieutenant Colonel Wilson's services reflect highest credit on himself and the armed forces of the United States." Dr. Wilson graduated from Cornell University Medical College, New York, in 1927 and entered the service June 1, 1942.

Lieutenant Colonel Gaetano T. DeFusco

The Legion of Merit was recently awarded to Lieut. Col. Gaetano T. DeFusco, formerly of Jersey City, N. J., at present commanding officer of the 183d Station Hospital, Fort Richardson, Alaska, for the performance of exceptionally meritorious services. The citation accompanying the award stated that it was presented "for exceptionally meritorious conduct in the performance of outstanding services during the period May 20, 1943 to Oct. 20, 1945. As regimental surgeon, 78th Coast Artillery Regiment, commanding officer of two station hospitals in the Aleutian area and later as commanding officer, 183d Station Hospital, Fort Richardson, Lieutenant Colonel DeFusco exhibited the highest professional and military standards. In addition to the calm and efficient manner in which he performed his many missions, his ability to perceive future problems, conditions and the initiative and skill to plan in advance and act accordingly was a credit to this command. Lieutenant Colonel DeFusco's personal interest and professional experience were responsible for the establishment of immediate health facilities and a modern dispensary in the town of Unalaska. As a result of his untiring efforts and industry, the medical care for all personnel both military and civilian was carried out in a progressive and exceptional manner. The high standards of efficiency in medical care achieved by the 183d Station Hospital is largely due to the judgment, unselfish energy and devotion to duty displayed by this officer. His high sense of duty and loyalty, combined with professional ability, reflect great credit on himself and the military service." Dr. DeFusco graduated from Georgetown University School of Medicine, Washington, D. C., in 1931 and entered the service in December 1940.

Captain John L. Cathie

Capt. John L. Cathie, formerly of Alexander, N. Y., was recently awarded the Bronze Star "for meritorious achievement in connection with military operations against the enemy at Arawe, New Britain, from Dec. 15, 1943 to March 1, 1944. During the arduous campaign which followed the assault landing on Arawe, Captain Cathie distinguished himself as a squadron medical officer by his outstanding devotion to duty in carrying out his assignment. The squadron aid station was established close to the front lines and he was often exposed to enemy small arms, machine gun and mortar fire while performing his duties. Faced with the problem of providing medical attention for large numbers of men and working under the handicap of a scarcity of medical equipment and supplies, he devoted himself so wholeheartedly to his task that expert treatment was given to troops at all times. Captain Cathie's enthusiasm, his consideration for the welfare of the sick and wounded and his willingness to undergo great physical hardships and personal danger were a priceless inspiration to all the officers and men to the unit in which he served." Dr. Cathie graduated from the University of Toronto Faculty of Medicine in 1937 and entered the service in August 1942.

Lieutenant Colonel John H. Mulholland

Lieut. Col. John H. Mulholland, formerly of New York, was recently awarded the Bronze Star "for meritorious service in connection with military operations as chief of surgical service, 1st General Hospital, European Theater of Operations, from Oct. 23, 1944 to May 1, 1945." The citation further stated that "Lieutenant Colonel Mulholland has given unstintingly of his time and skill, in the professional care of patients, always pursuing new and advanced methods of treatment and thus reducing the rate of mortality among battle casualties treated. As surgical consultant in the Seine section he imparted his knowledge to the surgical services of other hospitals, which resulted in the saving of hundreds of lives and early return to duty of thousands of patients." Dr. Mulholland graduated from New York University College of Medicine, New York, in 1925 and entered the service Oct. 18, 1942.

Captain William M. McConahey Jr.

The Silver Star was recently awarded to Capt. William M. McConahey Jr., formerly of Coshocton, Ohio. The citation accompanying the award called attention to his gallantry on June 22, 1944 in the vicinity of Portbail, France: "When a litter squad of his detachment had failed twice in attempts to evacuate three critically wounded men from an area under heavy enemy mortar concentrations, Captan McConahey himself led the squad forward under the constant enemy barrage. As they approached the wounded men, an enemy machine gun opened fire on the group. Captain McConahey ignored the enemy fire and located and directed the evacuation of each of the three wounded in turn. The gallant example of Captain McConahey resulted directly in the saving of the life of at least one man. His courageous action over and above the call of duty was in accord with high military tradition." Dr. McConahey graduated from Harvard Medical School, Boston, in 1942 and entered the service July 16, 1943.

Captain Emil P. Zarsky

The Silver Star was recently awarded to Capt. Emil P. Zarsky, formerly of Refugio, Texas, "for gallantry in action on Nov. 18, 1944 in the vicinity of Leintrey, France. On notification that two men had been seriously wounded by stepping on a mine, Captain Zarsky, without regard for his personal safety, immediately proceeded fearlessly through the mine field to the scene of the accident. Fully aware of the danger involved, he forbade any one to accompany him, except one officer and one enlisted man. His bravery and unselfish devotion to duty reflect great credit on this officer and exemplify the finest traditions of the United States Army Medical Corps." Dr. Zarsky graduated from St. Louis University School of Medicine in 1929 and entered the service Sept. 22, 1942.

Colonel Claude S. Beck

The Legion of Merit was recently awarded to Col. Claude S. Beck, formerly of Cleveland. The citation stated that Colonel Beck "brought to the Army a wealth of background and training in surgery which he tirelessly imparted to the staffs of the army hospitals. By close and constant supervision over the personnel assigned to the surgical services of the command and over the procedure they carried out, he developed and maintained a high standard of treatment. He was alert and quick to put into use any worth while advances in surgical technic. By his energy, superior professional ability, broad vision and sound judgment, he made a material contribution to the war effort." Dr. Beck graduated from Johns Hopkins University School of Medicine, Baltimore, in 1921 and entered the service Oct. 10, 1942.

Major Julian A. Sterling

Major Julian A. Sterling, formerly of Philadelphia, was recently awarded the Bronze Star. According to the citation, "Major Sterling performed outstanding services in establishing the convalescent training program for this theater. His services included the editing, publishing and distribution of division brochures and the supervision of many convalescent hospital programs. Major Sterling has contributed in great measure to the morale and efficiency of the thousands of wounded soldiers returned to combat and assisted materially in the success of the important theater manpower conservation program." Dr. Sterling graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1936 and entered the service April 1, 1941.

Lieutenant Colonel John A. DePasquale

The Silver Oak Leaf was recently awarded to Lieut. Col. John A. DePasquale, formerly of Hartford, Conn. Lieutenant Colonel DePasquale served on Guadalcanal, the Russell Islands, Rendova and New George. At Rendova he performed operations out in the open, days before the first tents could be put up. Dr. DePasquale graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1936 and entered the service Feb. 24, 1941.

Colonel Guy W. Horsley

Col. Guy W. Horsley, Richmond, Va., was recently awarded the Legion of Merit. He was chief of the surgical service of the 45th General Hospital and the award made was for "exceptionally meritorious conduct in the performance of outstanding services." Dr. Horsley was especially cited for his devotion to duty "during the times of greatest stress immediately following the drive on Rome and the invasion of southern France." Dr. Horsley graduated from the University of Virginia Department of Medicine, Charlottesville, in 1929 and entered the service May 15, 1941.

Lieutenant Colonel Severio Charles Franco

The Bronze Star was recently awarded to Lieut. Col. Severio Charles Franco, formerly of Brooklyn, for "meritorious service in connection with military operations from July 31, 1944 to May 1, 1945." He commanded the Ninth Field Hospital, which was awarded the Meritorious Service Unit Plaque. Dr. Franco graduated from Long Island College of Medicine, Brooklyn, in 1931 and entered the service Sept. 18, 1942.

Captain Seymour Hershman

Capt. Seymour Hershman, formerly of Chicago, was recently awarded the Bronze Star "for meritorious service in connection with military operations against an enemy of the United States during the period July 17, 1944 to April 28, 1945. Captain Hershman, serving as assistant to chief of surgical service, 109th Evacuation Hospital, distinguished himself by his outstanding performance of duty. The high degree of professional skill he displayed, his resourcefulness and loyal, untiring devotion to duty reflect great credit on himself and the military service." Dr. Hershman graduated from the Chicago Medical School in 1942 and entered the service Oct. 6, 1942.

Major Wesley B. Oliver

Major Wesley B. Oliver, formerly of Belvidere, Ill., was recently awarded the Bronze Star for a "display of fine administrative ability, indefatigable energy and tireless devotion to duty, all of which were of inestimable value in the prompt and efficient evacuation of Third Army casualties." Dr. Oliver graduated from Northwestern University Medical School, Chicago, in 1936 and entered the service Sept. 2, 1942.

Lieutenant Colonel William T. Holladay

The Legion of Merit was recently awarded Lieut. Col. William T. Holladay, formerly of Dixon, Ill., for "meritorious service and bravery, particularly in the 37th Division's campaign in Manila." Dr. Holladay graduated from Northwestern University Medical School, Chicago, in 1931 and entered the service March 15, 1941.

Major Samson D. Entin

Major Samson D. Entin, formerly of Chicago, was recently awarded the Bronze Star "for meritorious service with the 65th Infantry Division in France, Germany and Austria for the period March 5 to May 8, 1945." Dr. Entin graduated from Loyola University School of Medicine, Chicago, in 1936 and entered the service March 5, 1941.

Captain Martin M. May

Capt. Martin M. May, formerly of Marion, Ill., was recently awarded the Bronze Star and the Meritorious Service Unit Plaque. Dr. May graduated from St. Louis University School of Medicine in 1938 and entered the service Oct. 7, 1942.

MISCELLANEOUS

DIRECTORY OF APPROVED SURGICAL TRAINING PLANS

The American College of Surgeons recently published a 424 page directory in which are listed and described the approved programs of graduate training in surgery in 240 civilian hospitals in the United States and Canada and in 32 Naval, 7 Veterans Administration and 10 United States Public Health Service hospitals. The directory is chiefly an aid to medical officers returning from war duty and was made possible through the financial aid of a number of industrial organizations which have made contributions as a tribute to medical officers in the governmental services during the war.

UNRRA NEWS

Report on Work Done in Greece

Miss Rosamond Wansborough, an English nurse with special training in dietetics, recently returned from Greece after ten months of service as a nurse and dietitian in the mountainous areas of that country. In her report she states that only the UNRRA emergency food supplies saved thousands of lives and are giving the stricken villagers the heart to prepare for the coming winter. Last spring most people in these villages were scarcely strong enough to carry their own food from the warehouse to their homes. Many still suffer from apathy and depression as a result of prolonged starvation. UNRRA's food program is designed to bring the basic ration up to 2,000 calories a day for each person. Included for children are special rations of cod liver oil, powdered milk and soup. Infant mortality is now dropping, and children are beginning to resume normal growth.

Communicable Diseases in Europe

The principal communicable diseases threatening the present health of Europe, according to a summary of the epidemic situation on that continent made public recently by UNRRA in Epidemiological Information Bulletin No. 17, are typhus in the east, typhoid in both west and east and malaria in the Mediterranean area. Tuberculosis, diphtheria and syphilis are generally prevalent. Dysentery has been reported on the increase in a number of areas including Great Britain, and outbreaks of poliomyelitis have been noted in Belgium and Czechoslovakia.

Systematic control measures, especially the use of DDT to kill lice, have all but succeeded in eradicating epidemic typhus west of the Elbe-Adriatic line. In the eastern part of Europe the forced movements and resettlements of population now in progress are aggravating all problems of disease control. Malaria control too has been simplified by the use of DDT, but typhoid and dysentery will be harder to curtail.

The bulletin also advocates control measures to stop the spread of tuberculosis but is aware that this problem is tied up with "the slow nursing back to health of a war-torn continent." The issue also contains a survey of infant mortality in large towns and reports on the prevalence of plague, cholera, yellow fever, smallpox, relapsing fever and other communicable diseases throughout the world.

Diphtheria—Still Leading Epidemic Disease

Diphtheria, which reached epidemic proportions in a large part of central and northern Europe in 1942 and 1943, continues to be the leading epidemic disease and is still increasing rapidly in both Finland and Germany. In the Netherlands diphtheria has become one of the chief causes of death, as far as infectious diseases are concerned, second only to tuberculosis. France, Czechoslovakia, Belgium and Austria continue to have high morbidity and mortality rates from diphtheria. Only in Norway has the diphtheria wave reached its peak and begun to subside. The United Kingdom and Hungary have been able to continue methods of immunization in use prior to the war and have a comparatively low number of diphtheria cases.

That the epidemic is not confined to the Western World is proved by reports of Japanese civilian officials to the Pacific Office of the Chief Surgeon, U. S. Army, which show that diphtheria is the most important epidemic disease in Japan. The Philippines also have a large number of cases.

Three Tons of DDT Released for Italy

Following an outbreak of bubonic plague at Taranto, Italy, where 23 cases were reported, UNRRA is dispatching by air from London two sanitation experts and a cargo of rat extermination materials in response to an appeal from Italian health authorities. All of the reported cases, 11 of which were fatal, were traced to a warehouse on the water-front of the Italian naval base.

UNRRA immediately released 3 tons of DDT for dusting the population of the area and killing the fleas which carry infection from rats to man. A truck to haul the equipment used for cyaniding ships in the port to kill the rats was also made available. The British Ministry of Food has lent McAuley Gracie, one of the two disinfestation experts reporting at Taranto, who will train Italian health officers in rat extermination. As a precaution against a further outbreak, plague vaccine to immunize 100,000 individuals is being sent from UNRRA's European office in England.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Ford, Henry G., Lt. Col., American National Bank, Gadsden.
Gelperin, Jules, Capt., 3809 12th Court South, Birmingham.
Glazer, Harry, Capt., 219 S. Hull St., Montgomery.
Moorman, John D., Major, 214 W. Holmes St., Huntsville.
Nethery, Sidney J. Jr., Major, Belle Mina.
Newburn, George W., Jr., Capt., T. C. I. Hosp., Fairfield.
Shelamer, Arthur M., Major, 202 N. Madison, Athens.
Thigpen, Francis M., Capt., 401 S. Court, Montgomery.

Arkansas

Kemp, Karlton H., Capt., 1124 Hickory St., Texarkana.
Maguire, Frank C., Capt., County Health Unit, Blytheville.

California

Ahlering, Joseph Jerome, 1st Lt., General Hospital, Frensno.
Cappeller, Wm. S., Capt., 789 Buena Vista Ave., San Francisco.
Comroe, Jules B., Major, 1050 Franklin St., San Francisco.
Custer, Lawrence R., Col., 909 Hyde St., San Francisco.
Garretson, Kirk D., Capt., 4119 Manila Ave., Oakland.
Gibbs, Gordon E., Capt., Thermal.
Haakinson, William H., 1st Lt., 1750 Park Ave., San Jose.
Jones, Floyd H., Major, 2603 E. Broadway, Long Beach.
Jones, Theodore C., Capt., 511 E. Manchester Blvd., Inglewood.
Joseph, Peter S., Capt., 1200 Washington St., San Francisco.
Koerper, Victor E., Capt., 3850 Montecito, Santa Rosa.
Leichter, Martin, Capt., 839 N. Poinsetta Pl., Los Angeles.
Loy, Monroe F., Major, 312 N. Boyle Ave., Los Angeles.
Miller, Albert G., Capt., 205 3d Ave., San Mateo.
Moulton, Rowland R., Major, 1032 LaCuesta, San Mateo.
O'Grady, W. E., Capt., 555 Buena Vista Ave., San Francisco.
Porter, Marshall E., Capt., Mendocino State Hosp., Talmage.
Powell, Forrest G., Capt., 620 W. Grove St., Visalia.
Spencer, John A., Capt., 1970 16th Ave., San Francisco.
Stark, Morris, Capt., 2416 Holly Ridge Dr., Hollywood.
Stewart, Harry B., Capt., 525 Nyrtle Ave., Modesto.
Yee, Jacob J., Lt. Col., 1531 W. St., Sacramento.

Colorado

Evans, Russell J., Lt. Col., 326 Colorado Blvd., Denver.
Krausnick, Keith F., Major, Yuma.
Lewin, Julian R., Major, 1282 St. Paul St., Denver.

Connecticut

Cotton, John M., Lt. Col., 200 Retreat Ave., Hartford.
Detora, Albert M., Capt., 657 High St., Middletown.
Hersey, Thomas F., Capt., 44 Park Ave., Hamden.
Krinsky, Charles, Capt., 951 Ocean Ave., New London.
Stankard, William F., Capt., 14 Cold Spring Rd., Stamford.
Voris, Jacques V., Capt., 132½ Main St., Norwalk.

Delaware

Ackart, Richard Jenks, Capt., "Rockmere," Wilmington.
Johnson, Wallace M., Major, 257 Main St., Newark.

District of Columbia

Finnegan, John F., Capt., 1342 E. Capital St., Washington.
Grennan, Henry A., Lt. Col., 4000 Cathedral Ave., Washington.
Kauffman, Julius, Capt., 818 Gallatin St., N.W., Washington.
Tumulty, Philip A., Capt., 4955 Glenbrook Rd., Washington.

Florida

Hanks, George W., Major, 5708 2nd Ave., N., St. Petersburg.
McKenzie, Jack A., Major, 701 Huntington Bldg., Miami.
Marks, Bert W., Capt., 1619 Jefferson Ave., Miami Beach.
Strumpf, I. J., Lt. Col., 1360 Morvenwood Rd., Jacksonville.

Georgia

Beard, Donald Edwin, Major, RFD No. 1, Smyrna.
Candler, Robert W., Lt. Col., 2498 Montview Dr., N.W. Atlanta.
Clements, Claude A., Capt., La Fayette.
Roper, C. James, Capt., Roper Hospital, Jasper.
Sherman, John H., Lt. Col., 2350 McDowell St., Augusta.
Stewart, Philip R., Major, 406 Walton St., Monroe.
Victor, Samuel, Capt., A. C. L. Hospital, Box 158, Waycross.

Illinois

Ablaza, Avelino Enriquez, Capt., 9054 S. Jefferson Ave., Chicago.
Ahern, Thomas Francis, Capt., 8223 Luella Ave., Chicago.
Brott, Everel W., Major, Lena.
Bunata, Emil J., Major, 1810 S. Clarence Ave., Berwyn.
Dunn, Marion F., Capt., Hinsdale Sanit., Hinsdale.

Illinois—Continued

Feinhandler, Harold S., Capt., 3156 W. Diversey Ave., Chicago.
Gunther, Aaron, Major, 3403 Lawrence Ave., Chicago.
Hamlin, Courtney N., Major, 1364 Brown Hills Rd., Rockford.
Jacobs, Henry J., Major, 218 E. Minn St., Spring Valley.
Jacobson, Herman A., Col., 2641 Carmen Ave., Chicago.
Malbin, Barney, Major, 5527 S. Dorchester Ave., Chicago.
Martin, John, Major, 303 E., Superior St., Chicago.
Meagher, George B., Capt., DePue.
Pallasch, Gervaise P., 1st Lt., 3016 Logan Blvd., Chicago.
Parker, Francis W. Jr., 1st Lt., 303 E. Superior St., Chicago.
Pellettieri, Nino M., Capt., 5137 W. Crystal St., Chicago.
Restivo, Jack L., Capt., 3058 W. Harrison, Chicago.
Richards, Francis L., Capt., Price Sanitarium Bldg., Springfield.
Rosenberg, Nathan, 1st Lt., 656 Wrightwood Ave., Chicago.
Schiff, Charles A., Capt., Michael Reese Hospital, Chicago.
Sinow, Sidney A., Capt., 302 E. South St., Clinton.
Stein, Philip J., Lt. Col., 7300 S. Shore Dr., Chicago.
Wolff, Luther H., 1st Lt., 215 N. Sheridan Rd., Waukegan.

Indiana

Abell, Charles Frederick, Capt., 420 W. 4th St., Marion.
Bailey, Edwin Blackwell, Capt., 560 A. St., N.E. Linton.
Boling, R. L., Capt., 4450 Marcy Lane, Apt. 120, Indianapolis.
Chambers, Leroy B., Capt., 800 N. Columbia St., Union City.
Cook, Charles E., Capt., 112 N. Market St., North Manchester.
Davidson, Wm. D., Major, 3115 E. Blackford Ave., Evansville.
Durkee, Mervin, Lt. Col., 102 E. Virginia St., Evansville.
Fisher, John E., 1st Lt., Clarksburg.
Hill, Kenneth G., Major, 201 E. 33rd St., Indianapolis.
Johnson, Robert B., Major, Muscatatuck Colony, Butlerville.
Kwitny, I. J., Lt. Col., 2829 N. Pennsylvania Ave., Indianapolis.
McElroy, Robert S., Major, 704 W. State St., Princeton.
Manley, Charles N., Major, Rising Sun.
Miller, Carl G., Major, 457 Oakdale, Ft. Wayne.
Nugen, Harold, Capt., 326 W. 7th St., Auburn.
Rossman, W. B., Capt., 1801 N. Kessler Blvd., Indianapolis.
Shuler, Lacey L., Major, 5868 Washington Blvd., Indianapolis.
Smith, William B., Major, 1125 Bradbury Ave., Indianapolis.
Steele, Dick J., Capt., 207 Northwood Blvd., Greencastle.
Wallace, H. C., Lt. Col., 107 W. Jefferson St., Crawfordsville.

Iowa

James, David W., Major, Kamrar.
Kiesau, Kenneth R., Capt., 208 Rossville Rd., Waukon.
Lister, Kenneth E., Major, Yocum Hospital, Chariton.
Missildine, Whitney H., Major, University Hospital, Iowa City.
Nachtwey, Robert A., Major, Lansing.
Niemann, Theodore V., Capt., Brooklyn.
Taylor, Wendel W., Major, Ireton
Wall, David, Capt., 416 Franklin St., Ames.
Wolpert, Paul L., Capt., Onawa.
Wray, Robert M., Major, 402 25th St., S.E., Cedar Rapids.

Kansas

Polson, Robert C., Capt., 1129 Louisiana, Lawrence.
Jordan, Ralph E., Major, 503 Campbell, Beloit.
Melchert, Harold B., Major, 24 S. Mission, Council Grove.
Weinberg, Bernhard J., Capt., 1302 W. 4th Blvd, Coffeyville.
Wolohon, Harry C., Capt., Scammon.

Kentucky

Burks, James M., Capt., Leithfield.
Carr, Arch M., Capt, Alva.
Coe, George R., Capt., 118 Home, Erlanger.
Cohen, Robert, Major, 939 Eastern Pkwy. Louisville.
Foley, James D., Capt., Loyall.
Merlis, Jerome K., Capt., 101 W. Chestnut St, Louisville.
Schickel, Joseph, Capt., Burkesville.
Townsend, William M., Capt., Falmouth.
Wright, Thomas J., Capt., 1857 S. Limestone, Lexington.
York, Paul S., Major, Glasgow.

Maine

Brown, Freeman F. Jr., Capt., 5 Beech St., Rockland.
O'Sullivan, William B., Capt., 345 Maine St., Biddeford.

Mississippi

DeJarnette, Robert H., Capt., 1619 Filmore St., Corinth.
Hedmeg, Andrew, Major, 203 Gresham St., Indianola
Lunceford, William H., Capt., Slate Spring.
Ryan, Everett W., Lt. Col., Gulfport.

PHYSICIANS SEPARATED FROM SERVICE

Missouri

Belot, Monti Louis, Jr., Capt., 630 Argyle Bldg., Kansas City.
Blache, Julian Owen, Capt., 4431 Evans Ave., St. Louis.
Cassidy, Leslie D., Lt. Col., 7410 Oxford Dr., Clayton.
Cook, Oliver W., Capt., Portageville.
Hamilton, Hugh G., Major, 1107 Bryant Bldg., Kansas City.
Hollingsworth, Robert S., Major, 1052 S. Delaware, Springfield.
Jordan, Raymond E., Capt., 4940 Forest Park, St. Louis.
Kohler, Louis H., Lt. Col., 5400 Arsenal St., St. Louis.
Lamar, Robert F., Major 3653 Charlotte St., Kansas City.
McDaniel, John R., Capt., 602 N. Francis St., Savannah.
Mulkey, James R., Major, 808 Dewey St., Farmington.
White, Charles H., Major, 1107 Bryant Bldg., Kansas City.
Zemsky, David W., Capt., 4330 A Lindell Blvd., St. Louis.

Nebraska

Anderson, James Burns, Col., 4903 Huntington Ave., Lincoln.
Morrow, Hamilton H., Capt., 406 E. 6th St., Fremont.
Munger, Horace V., Major, 2418 Calumet Ct., Lincoln.
Plechas, Nicholas P., Lt. Col., 5708 S. 38th St., Omaha.
Prescott, Kenneth E., Capt., Long Pine.
Wright, Glenn R., Capt., 606 S. 35th St., Omaha.

New Hampshire

Gifford, William H., Major, 105 Pleasant St., Concord.

New York

Ahrens, Arthur P., Capt., 101-66 118th St., Richmond Hill, L. I.
Albrecht, Henry Franz, Jr., Capt., 64 Second St., Troy.
Berkhausen, Bennett R., 1st. Lt., 46 Admiral Rd., Buffalo.
Bevilacqua, Michael, Major, 65-24 78th Ave., Glendale.
Cerrato, Anthony J., Capt., 942 E. 241st St., Bronx.
Cetta, Peter J., Capt., 874 Kent Ave., Brooklyn.
D'Avanzo, Charles S., Capt., 4115 50 Ave., Long Island City.
D'Aversa, Generoso, Capt., 1323 75th St., Brooklyn.
DiMarco, Vincent J., Capt., 306 Virginia St., Buffalo.
Downs, Wilbur G., Major, 11 Kiwassa Road, Saranac Lake.
Emmi, Anthony J., Capt., 34-06 9th St., Long Island.
Esposito, John A., Capt., 104 Church St., Saratoga.
Feraru, Felix, Capt., 154 President St., Lynbrook.
Field, Leonard E., Major, 576 Eastern Parkway, Brooklyn.
Giganti, Biagio C., Capt., 220 Weirfield St., Brooklyn.
Gilfillan, Rutherford S., Major, 508 W. Delevan Ave., Buffalo.
Glick, Louis J., Major, 68 Parcot Ave., New Rochelle.
Grinnell, Robert S., Major, 1170 5th Ave., New York.
Hayes, John G., Major, 20 Clarendon Road, Albany.
Heeks, William G., Lt. Col., 115 E. 90th St., New York.
Henkin, William A., Capt., 707 Willoughby Ave., Brooklyn.
Kant, Emanuel R., Capt., 610 8th Ave., New York.
Kantor, Samuel, Major, 544 Madison Ave., Albany.
Kaplan, Saul R., Capt., 47 Kew Gardens Rd., Kew Gardens.
Lamb, Thomas M., Major, 562 4th St.. Brooklyn.
LeFever, Kenneth H., Major, 54 Pearl St., Kingston.
Lehman, Ernest, Major, 1577 51st St., Brooklyn.
Levin, Louis Major, 106 E. 96th St., Brooklyn.
McFarlin, Raymond T., Major, 455 E. 143 St., Bronx.
Maroon, Sam Z., Major, 100 Broadway, Kingston.
Marquith, Leo, Capt., 57 E. 88th St., New York.
Nachamie, Irving, Major, 125 Maple St., Brooklyn.
Nadvorney, Leo, 1st Lt., 1740 Grand Ave., Bronx.
Naumoff, Joseph H., Major, 1060 Crane St., Schenectady.
Patterson, Barnard D., Major, 9464 220th St., Queens Village.
Pellman, Louis, Capt., 3019 Avenue U, Brooklyn.
Pernice, Salvatore L., Capt., 8605 Bay 16th St., Brooklyn.
Perrone, Hector, Capt., 58 W. 9th St., New York.
Pilz, William A., Capt., 6336 60th Pl., Ridgewood, L. I.
Price, Robert M., 1st Lt., Main St., Clifton Springs.
Rapoport, Morris R., Capt., 2320 Grand Concourse, New York.
Reardon, James J., Capt., 132 Court St., Plattsburg.
Schofield, Oscar, Capt., 2241 E. 7th St., Brooklyn.
Schreiber, Sidney J., Capt., 42 Avenue D, New York.
Schwartz, Frederick, Major, 465 Empire Blvd., Brooklyn.
Schwarz, William A., Capt., 57 Broad St., Stapleton, S.I.
Shulack, Norman R., Major, 1824 Ocean Pkwy, Brooklyn.
Sisman, Irving E., 1st Lt., 3172 Rochambeau Ave., New York.
Smith, Stuart B., Capt., 3 Grant St., Pleasantville.
Snyder, John C., Lt. Col., 66th & York Ave., New York.
Weinstein, Israel, Major, 353 W. 56th St., New York.
Whitbeck, Carl G., Major, 439 Union St., Hudson.
Winkley, John H., Capt., Bellevue Hospital, New York.
Wycoff, Joseph W., Capt., 95 Old Country Rd., Hicksville.
Wylie, Robert H., Major, 17 Henderson Pl., New York.
Yellen, Hiram S., Col., 237 Linwood Ave., Buffalo.
Yellen, Irving, Capt., 237 Linwood Ave., Buffalo.

North Carolina

Barnes, Henry Eugene, Capt., Richard Baker Hosp., Hickory.
Byrd, Charles W., Capt., Bunnlevel.
Harris, Jerome S., Major, Duke Hospital, Durham.
Poole, Marvin B., Capt., 500 S. Layton Ave., Dunn.
Washburn, Chivous Y., Capt., Mooresboro.

North Dakota

Greengard, Milton, Capt., Rolla.
Kaylor, Coy C., Major, St. Johns Hospital, Fargo.

Oklahoma

Houston, Evan G., 1st Lt., 900 N. W. 13th St., Oklahoma City.
Levick, Julius E., Capt., 916 W. Second St., Elk City.
Mercer, J. W., Major, 1322 Indian Dr., Enid.
Ragan, Tillman A., Lt. Col., 1213 Iowa, Chickasha.
Word, Lee B., Major, 315 Union Nat. Bank Bldg., Bartlesville.

Oregon

Espersen, Ruben W., Lt. Col., Klamath Falls.
Montgomery, T. R., Major, 12714 Iron Mount. Blvd., Portland.
Sharp, Paul W., Lt. Col., Klamath Med. Clin. Klamath Falls.
Sunquist, Everett L., Major, Springfield.

Pennsylvania

Arons, Leonard Maxwell, Capt., 5604 Penn Ave., Pittsburgh.
Beckley, Edward C. Major, 122 E. Green St., Nanticoke.
Bonner, Francis J., Capt., 125 Argyle Rd., Ardmore.
Frick, John H., Capt., 34 N. Keesey St., York.
Gaev, Samuel D., Major, 257 S. 5th St., Philadelphia.
Garvin, Luke D., Capt., 757 E. Main St., Bradford.
Gearhart, Lyster M., Capt., 1540 Walnut St., Allentown.
Hegarty, Francis A., Major, 124 S. Pasadena Drive, Pittsburgh.
Levison, David J., Capt., 5518 Darlington Rd., Pittsburgh.
Liska, John R., Major, RFD 3, Box 222, Greensburg.
Meredith, Thomas N., Capt., 5800 Hampton St., Pittsburgh.
McElroy, Walter D., Major, 1408 Evans St., McKeesport.
Ross, Joseph V., Capt., 102 Market, Berwick.
Schaefer, William C., Capt., 2337 Walton Ave., Pittsburgh.
Schornick, James C., Capt., Hosp. of the U. of Pa., Philadelphia.
Steffa, Peter L., 1st Lt., 1644 N. 3d St., Philadelphia.
Stegura, Frank H., Capt., 62 E. Main St., Glen Lyon.
Weaver, Thomas D. L., Capt., 119 Teece Ave., Bellevue.
Weber, John M., Major, 1317 Denniston Ave., Pittsburgh.
Whitaker, John C., Capt., 24 H. Hickory St., Mount Carmel.
Woldow, Irving, Major, 5224 Woodbine Ave., Philadelphia.

Rhode Island

Freedman, Stanley S., Capt., 63 Lenox Ave., Providence.
Haverly, Richard E., Major, 341 Cole Ave., Providence.
Webster, Frederick A., Capt., 70 Greenwood Ave., Rumford.

South Carolina

Cousar, John Bradley, Lt. Col., Box 45, Bishopville.
Fouche, Heyward H., Capt., 906 Barnwell St., Columbia.
O'Hear, James, Jr., Major, 11 Franklin St., Charleston.

Tennessee

Amos, Hugh, Capt., 1110 Birdsall, Old Hickory.
Anderson, James Percival, Capt., Clifton Lane, Nashville.
Biles, James David, Jr., Major, 1442 Goodbar Ave., Memphis.
Bryan, Malvern T., Capt., 244 N. Garland St., Memphis.
Christian, Henry S., Major, 506 Emoriland Blvd., Knoxville.
Fowler, Shelton F., Capt., 627 Woodland St., Nashville.
Gayden, Lewis R., Major, Hampton Ave., Nashville.
Higginbotham, John M., Capt., Route 10, Alsie Dr., Knoxville.
Johnson, Joseph W., Jr., Major, Lookout Mountain.
Miller, James B., Major, 707 Dunington St., Columbia.
Murphey, F. B., Jr., Capt., 806 N. Chamberlain Ave., Chattanooga.
Newman, Robert W., Major, 334 McLemore Ave., Memphis.
Raines, Samuel L., Major, 695 S. McLean, Memphis.
Raulston, Joseph L. Jr., Major, Fountain City, Knoxville.
Rippy, Elkin L., Lt. Col., 1915 Church St., Nashville.
Robertson, Robert C., Col., 109 Hilldale Dr., Chattanooga.
Warr, Otis S., Jr., Major, 225 S. Belvedere Blvd., Memphis.
Wilson, Paul W., Capt., Dresden.

Utah

Benson, Leo Walter, Capt., 1435 25th St., Ogden.

Vermont

French, Edward B., Capt., Main St., Hyde Park.
Smith, Gordan B., Capt., Highland Ave., Rutland.
Smolinski, Frank J., Major, 102 Main St., West Rutland.

Wisconsin

Brock, Clayton E., Major, 309 Oak St., Stevens Point.
Buscaglia, Anthony T., Capt., 1266 N. 85th St., Wauwatosa.
Cole, David F., Capt., 317 Watson St., Ripon.
Hoyer, Edward C., Capt., 110 James St., Beaver Dam.
Hull, Harmon H., Capt., Brandon.
Johnson, Chester T., Capt., DeForest.
Jones, Richard H., Lt. Col., 307 Spaulding Ave., Ripon.
Limberg, Philip W., Capt., 123 South St., Plymouth.
Martineau, John E., Capt., Elkhart Lake.
Perry, Edward L., Capt., Sturgeon Bay.
Peters, Bruno J., Major, 7933 Stickney Ave., Wauwatosa.
Seifert, Kenneth A., Capt., 522 W. 2d St., Ashland.
Shulman, Herbert, Capt., 612 Howard Pl., Madison.
Skogmo, B. R., Capt., Milwaukee Child. Hos., Milwaukee.
Settlage, Henry A., Capt., Lone Rock.
Seward, Lynn J., Capt., 553 Liberty St., Berlin.
Weinshel, Leo R., Major, 2508 E. Belleview Pl., Milwaukee.

MEDICAL OFFICERS RELEASED BY THE NAVY

NAVAL RESERVE MEDICAL OFFICERS RECOMMENDED FOR RELEASE FROM ACTIVE DUTY

California

Bailey, Byron G.	San Diego
Balyeat, Frederick S.	Los Angeles
Barnum, Glenn L.	Pasadena
Bonar, Perry A.	San Francisco
Bower, Albert G.	San Fernando
Bradford, Fred E.	Los Angeles
Burkhard, William G.	San Francisco
Butler, Oliver W.	Los Angeles
Cameron, Lawrence C.	Santa Ana
Chamlee, William F.	Hanford
Coleman, Denver D.	Alhambra
Cooper, Charles E.	San Francisco
Deffinger, William S.	Oakland
Drew, John F.	San Francisco
Dyke, Louis H., Jr.	Berkeley
Falconer, Fay H.	Los Angeles
Fetter, Edgar M.	San Diego
Findlay, Henry V.	Santa Barbara
Folsom, Clarence H.	San Marino
Foote, Frederick S.	San Francisco
Gay, LeRoy K.	San Francisco
Gaynor, Edmund P.	San Francisco
Gernand, Henry C.	Los Angeles
Gilman, Philip K. Jr.	San Francisco
Green, Marls C.	San Diego
Hankins, Franklin D.	Riverside
Harner, Clyde E.	Long Beach
Hillyer, Ernest C.	Long Beach
Hosmer, Matthew N.	San Francisco
Hoyt, Werner F.	Berkeley
Hurt, Laverne B.	San Diego
Irvine, George S.	San Leandro
James, Carvel M.	Beverly Hills
Kay, Jacob H.	Berkeley
Kelley, Edwin H.	San Diego
Knox, Stuart C.	Los Angeles
Koch, Peter L.	Sacramento
Konwaler, Benjamin E.	Vallejo
Kraft, George L.	Burbank
Lake, Thomas O.	Lafayette
Larson, Ernest E.	Los Angeles
Leland, John A. C., Jr.	Berkeley
Lester, David W.	San Diego
Loomis, Neal M.	Yuba City
Lucic, Lucas H.	La Jolla
Lymp, Leo J.	Hanford
Mackinnon, Donald G.	Exeter
McKenney, Philip W.	Alturas
McKinnon, Douglas D.	Los Angeles
McNamara, Delbert H.	Santa Barbara
Macnie, John P.	Menlo Park
Maino, Charles R.	Modesto
Maloney, Harold P.	Piedmont
Miller, Charles D.	Glendale
Miller, John J., Jr.	San Francisco
Moore, Ferrall H.	Palto Alto
Mulligan, Harold R.	Los Angeles
Nelson, Roy F.	Peidmont
Nesche, George E.	Oakland
Noble, Thomas E.	Long Beach
Page, Warren E.	Greenfield
Toomey, Francis E.	San Diego
Von Briesen, Hans	Los Angeles

California—Continued

Warrick, Floyd G.	Glendale
Werden, Delbert H.	San Diego
Weyrauch, Henry M.	San Francisco
Wiesinger, Warren E.	San Francisco
Williams, David B.	Santa Rosa
Williams, Harry D. Jr.	San Francisco

Illinois

Barber, Kent W.	Quincy
Barys, Harold J.	Chicago
Bergen, Samuel S.	Joliet
Boylan, Charles E.	Chicago
Boysen, Harry	Chicago
Braun, Leonard L.	Chicago
Brown, Seth Edwin	Evanston
Conklin, Charles A.	Normal
Dahlberg, Andrew V., Jr.	Chicago
Davis, William J. N., Jr.	Chicago
Duffy, Joseph E.	Joliet
Fischer, George G.	DuQuoin
Fruin, Leon T.	Normal
Green, Hyman S.	Chicago
Haraburda, Stanley V.	Chicago
Henegar, George C.	Harvey
Hogan, Richard J.	Chicago
Howe, Donnell C., Jr.	Chicago
Johnson, Ira W.	Noble
Kearns, John E., Jr.	Evanston
Loar, Ralph R.	Bloomington
McMahon, John V.	St. Charles
Mathis, John A.	Pinckneyville
Miller, James R.	Wilmette
Morrison, Thomas A.	Chicago
Nelson, Caryl Linder	Sandwich
Rambar, Alvin C.	Chicago
Sculley, Jesse C.	Algonquin
Shapiro, Fred	Chicago
Somerville, William	Chicago
Stack, James K.	Chicago
Stewart, Frederick J.	Kewanee
Tarry, George William	Chicago
Towner, Francis R.	Elgin
Trace, Herbert D.	Chicago
Tresley, Ira J.	Chicago
Vacin, Milo E.	Riverside

Missouri

Allen, Henry C.	Webster Groves
Allen, Horace E.	Columbia
Brown, Irwin S.	Kansas City
Bruner, Claude R.	Columbia
Chiarottino, Joseph F.	St. Joseph
Friedewald, Vincent E.	St. Louis
Higgins, Clinton K.	St. Louis
McGuire, William A.	St. Louis
Michael, Vernon E.	St. Louis
Millett, Henry S.	Kansas City
Penn, Lloyd L.	Troy
Simon, Jerome I.	St. Louis
Stuebner, Roland W.	St. Louis
Thompson, Frederick G. Jr.	St. Joseph
White, Raymond N.	Springfield
Wimp, Jesse J.	Kirksville

New Jersey

Allen, Chester B. Jr.	Montclair
Connolly, Joseph P.	Clifton
Daly, Sylvester	Bergen County
Denison, Ward C.	Ridgewood
Evans, David P.	Maplewood
Fenninger, Leonard D.	Princeton
Flax, Jacob L.	South Orange
Godfrey, Alan O.	Newman
Hill, Dean F.	Sussex
Ivory, Harry S.	Point Pleasand
Kelly, Francis T.	Westfield
Kohn, Ralph B.	Trenton
Medinets, Howard E.	Perth Amboy
Moore, Dean C.	E. Orange
Myers, Norman V.	Tenafly
Patti, Frank A.	Leonia
Pattyson, Ralph A.	Orange
Pratt, Gerald H.	Far Hills
Quirk, Martin Al.	Red Bank
Reich, Mortimer	Newark
Rieman, Aloysius P.	Jersey City
Smalzried, Elmer W.	Orange
Smith, Charles H.	Glen Ridge
Stefansin, Frank	North Bergen
Weiss, Abram	Weehawken
White, Frank S.	Teaneck
Winslow, John	Montclair
Wolfson, Harry	Paterson

New York

Arbuse, David I.	New York
Austen, Willard E.	New York
Baum, Erwin C.	Brooklyn
Bullwinkel, Harry G.	Yonkers
Buxton, Charles L.	Riverdale
Case, Thomas C.	New York
Cates, John R., Jr.	New York
Cattanach, Geo. S.	Forest Hills
Cohen, Eugene J.	New York
Cole, Lewis F.	Clifton
Creevey, Kennedy	Troy
de Grandpre, Gerard C.	Plattsburg
Dennee, Howard A.	Buffalo
Eisenberg, Harry	New York
Emert, James T.	New York
Fenech, Nicholas J.	Brooklyn
Ferrara, Paul A.	Canastota
Filberbaum, Milton B.	Brooklyn
Freedman, Saul	New York
Freston, Julian M.	New York
Garvey, Thomas Q., Jr.	New York
Gerling, John J.	Snyder
Goodman, Moses	Brooklyn
Graff, Edward R.	Brooklyn
Graham, Henry T.	Brooklyn
Graham, Lewis J.	Corning
Griffin, Howard P.	Binghamton
Hall, Frank M.	Jamestown
Hare, Clarence C.	Elmsford
Heist, Carleton A.	Westfield
Hoesten, Raymond P.	Richmond Hill
Hoover, William F.	Jamestown
Hudack, Stephen S.	New York

MEDICAL OFFICERS RELEASED BY THE NAVY

New York—Continued

Hyman, Albert S.	New York
Hynes, Barlow J.	Rockville Centre
Hynes, Thomas W.	Brooklyn
Ingham, Henry W.	Jamestown
McCartney, James L.	New York
McKendree, Charles A.	New York
McLaughlin, Robert R. M.	New York
Mainzer, Robert A.	Jackson Heights
Mathewson, Joseph B.	Bath
Matzner, Milton J.	Brooklyn
O'Connor, Harry A. D.	New York
Phillips, Richard B.	Rochester
Plank, Howard A.	New York
Podger, Kenneth A.	Kenmore
Prentice, Theodore C.	Aurora
Quigley, William F.	Oswego
Rakov, Daniel	New York
Reilly, John W.	Ossining
Rosen, Max	Brooklyn
Shaw, Henry C.	Rochester
Shepler, Lewis G.	Brooklyn
Sherwood, Davis W.	Ballston Spa
Shifrin, Leo A.	New York
Silberman, Henry	Kew Gardens
Simon, Emanuel	Albany
Sippel, Raymond L.	Springfield Gardens
Stabins, Samuel J.	Rochester
Stein, Ephraim	Brooklyn
Stuck, Robert G.	Wolcott
Surber, Frank R.	Bellrose, L. I.
Watson, William L.	New York
Woodward, Arthur P.	Brooklyn

Ohio

Coleman, Marion W.	Dayton
Cushing, Edward H.	Cleveland
Damitz, John C.	Akron
Disbro, Proctor P.	Cleveland
Engel, William J.	Cleveland
Fisher, James L.	Youngstown
Gardner, Stanley	Bay Village
Groom, Dale L.	Lakewood
Gross, Benjamin G.	Cleveland
Haller, Harry A.	Parma
Hammersley, Eugene R.	Tuscarawas
Hann, William L.	Bryan
Haynes, Harley A. Jr.	Akron
Hedlund, Gerald O.	Painsville
Hudson, Ellis H.	Athens
Kennedy, Roscoe J.	Cleveland
Meck, Floyd S.	Cleveland
Neill, William A.	Toledo
Newell, Thomas E.	Dayton
Schneble, Richard C.	Dayton
Sharp, Howard V.	Cuyahoga Falls
Shaweker, Max	Dover
Simpson, Walter M.	Dayton
Smith, Frederick A.	Akron
Stack, Leonard A.	Lorain

Pennsylvania

Burke, John F.	Shenandoah
Canivan, Robert C.	Houesdale
Cashman, William M.	Warren
Casper, Stephen L.	Lansdowne
Clifford, Richard V.	Drexel Hill
Deininger, John T.	Philadelphia
Durkin, John K.	Philadelphia
Eckenrode, Joseph L.	Lancaster
Ericsson, Francis S.	Ridgway
Ferguson, Lewis K.	Philadelphia
Fisher, Luther I.	Gettysburg
Fritz, Herbert H.	Bryn Mawr
Glenn, Herbert R.	State College
Good, Harry S.	Allentown
Gordon, John F.	Philadelphia
Greenspan, Herbert S.	Philadelphia
Gregg, William P.	Upper Darby
Grohowski, Alphonsus L.	Wilkes-Barre
Guckavan, Martin F.	Philadelphia
Hahn, Karl W.	Bethlehem

Pennsylvania—Continued

Harkins, Herbert P.	Philadelphia
Harney, Chas. H.	Bryn Mawr
Hinkson, William J.	New Castle
Judd, Joseph H.	McKeesport
Kenney, Joseph R.	Pittsburgh
Kervin, Joseph A.	Bradford
Kneedler, Milo W.	Pittsburgh
Langston, William C.	York
Levin, Nathaniel M.	Philadelphia
McGeary, Francis J.	Jenkintown
Manley, John G.	Philadelphia
Murphy, Edward J. Jr.	Philadelphia
Newbaker, Bryce A.	Philadelphia
Norris, Robert F.	Philadelphia
O'Brien, Michael G.	Scranton
Pangburn, Edward W.	Philadelphia
Pistorio, Michael J.	Erie
Randall, Karl C. II	Pittsburgh
Santee, Frederick L.	Wapwallopen
Saul, Leon J.	Media
Schenck, Harry P.	Wynnewood
Skinner, Robert W. III	Wales
Smith, Austin T.	Wynnwood
Sonneborn, Duane G.	Philadelphia
Stroh, Robert H.	Syoming
Tice, Willard H.	Quakertown
Titus, Paul	Pittsburgh
Vogel, Francis S.	McKean
Weaver, Harry S. Jr.	Philadelphia

Texas

Aderhold, James P.	San Antonio
Allday, Louie E.	Dallas
Black, Arthur P.	El Paso
Brazelton, Thomas B. Jr.	Waco
Burgess, John L. Jr.	Waco
Burr, Harry B.	Houston
Butler, Thomas B. Jr.	San Antonio
Cox, Stanley	Groesbeck
Donnelly, Verner J.	Plainview
Evans, Fred G.	El Paso
Fears, Thaddeus A.	Beaumont
Fowler, Kenneth	Houston
Glen, John K.	Houston
Hawkins, Charles P.	Fort Worth
Hill, Walter H.	San Antonio
Holman, Winston C.	Dallas
Homan, Ralph H.	El Paso
Lace, William T.	Fort Worth
McLaurin, Hugh L.	Dallas
Mansell, Chris C.	Lubbock
Martin, James R.	Houston
Miller, Ernest E.	Beeville
Miller, Lafayette T.	Dallas
Orr, Guy H.	Houston
Ravel, Vincent M.	El Paso
Reddick, Walter G.	Dallas
Ross, Jesse E. Jr.	Henderson
Shelburne, Samuel A.	Dallas
Short, Robert F.	Dallas
Strieder, Hugo J.	Moulton
Taubenhaus, Leon J.	Houston
Tottenham, John W. Jr.	T Forth Worth
Turner, Claude G.	Houston
Valcik, John H.	Dallas
Walker, James B. N.	Dallas
West, Walter B.	Ft. Worth
Wills, Seward H.	Houston

Virginia

Adams, Walter P.	Norfolk
Amiss, James E.	Luray
Byrd, George B.	Norfolk
Cabaniss, James L.	Roanoke
Devine, Charles J.	Norfolk
Gardner, John E.	Salem
Helvestine, Frank, Jr.	Roanoke
Hogan, Chester F.	Richlands
Hopkins, Frank R.	Lynchburg
Hutchinson, Joseph R. B.	Arlington
Keefer, Clarence E.	Lynchburg

Virginia—Continued

Lyle, Herbert Phillips	Portsmouth
Morgan, Rees	Roanoke
Motyca, Lawrence J.	Norfolk
Nelson, Charles M.	Richmond
Peterson, Charles H.	Roanoke
Phillips, Benjamin F.	Quantico
Picot, Prosser H.	Alexandria
Simpson, George W.	Norfolk
Smart, Frank P.	Norfolk
Smart, William R.	Norfolk
Spengler, Luther C. Jr.	Roanoke

Washington

Calhoun, Emmett L.	Hoquiam
Foster, Ralph A.	Yakima
Harris, Milo T.	Spokane
Hoedemaker, Edward D.	Seattle
Lewis, William E.	Tacoma
McVay, John P. P.	Seattle
Pomeroy, Rex K.	Washington
Querna, Milburn H.	Spokane
Rice, Glen G.	Seattle
Shirey, Ralph W.	Yakima
Southcombe, Robert H.	Spokane
Standard, James F.	Seattle
Watkins, Harry C. Jr.	Hoquiam
Whitlow, Leslie W.	Seattle
Wood, Joseph G.	Prosser

West Virginia

Brown, James R.	Huntington
Churchman, Vincent T.	Charleston
Condry, Raphael J.	Elkins
Dobbs, Frederick H.	Wheeling
Duncan, Charles S.	Huntington
Fox, Merill R.	Charlestown
Glenn, Marshall	Charleston
Haley, Peter A. II	Charlestown
Klumpp, James S.	Huntington
Kroger, Louis E.	Logan
Little, Harold G.	Wheeling
Lutz, John E.	Charleston
Newhouse, Newman H.	Charleston
Nicholson, Berlin B.	Parkersburg
Pollock, Bruce H.	Charleston
Porterfield, Marvin H.	Martinsburg
Rusmisell, James A., Jr.	Buckhannon
Thornhill, William A. Jr.	Charleston
Wade, Franklin G.	Wellsburg

Wisconsin

Adrians, Wilbert A.	Appleton
Ansfield, Maurice J.	Milwaukee
Benson, Clifton E.	Bremerton
Brindley, Benjamin I.	Madison
Cochrane, William L.	Wayside
Culver, Lucian G.	Eau Claire
Dockry, Lyman E.	Kewaunee
Ebeling, Walter W.	Mt. Vernon
Fuson, Horace S.	Eau Claire
Houghton, William J.	Milwaukee
Johnston, Thomas L.	Milwaukee
Kramoris, Fred H.	Milwaukee
Little, William J. Jr.	Racine
Ross, Fordyce A.	Milwaukee
Ryan, William A.	Milwaukee
Sargent, James C.	Milwaukee
Schilling, Harold J.	Denmark
Sheehan, William C.	Stevens Point
Strand, Robert C.	Eau Claire

Wyoming

Cashman, James E.	Rawlins
Wallin, Stanley P.	Cheyenne
Zuckerman, Samuel S.	Cheyenne

Hawaii

Chandler, Harold M.	Waipahu, Oahu
Corboy, Philip M.	Honolulu
Millard, Robert D.	Honolulu
Palma, Joseph	Honolulu

ORGANIZATION SECTION

"MEDICINE AND THE CHANGING ORDER"

Statement by the Committee on Medicine and the Changing Order of the New York Academy of Medicine in Comment on President Truman's Special Message to Congress on Nov. 19, 1945 Advocating Compulsory National Medical Insurance

During the past three years the New York Academy of Medicine, through its Committee on Medicine and the Changing Order, has been making an intensive study of current social and economic changes and of their effects on medical care and public health. This committee was appointed to study all problems involved in the distribution of adequate medical care, embracing not only the immediate management of the sick but also preventive medicine, public health, medical education and research, nursing, hospitals, convalescent care and rehabilitation, dental care, health education of the lay public, and finally the ways and means to meet the costs of such services. The Committee on Medicine and the Changing Order is not, in the strict sense of the term, a medical committee, nor does it represent solely the medical profession. It includes in its membership a large percentage of nonmedical persons, representing labor, industry, law, social work, the clergy and the public at large, who have had full opportunity to participate in the work of the committee and to express their points of view. The committee has met weekly and, at times, more often, to listen to the testimonies presented by invited experts. It has spent many hours in deliberation, collectively and in subcommittee meetings at which smaller groups of experts have studied and dealt with the specific phases of problems confronting present day medicine. The committee has been supported in its work by a corps of experts, and the costs of its work have been met by grants from the Commonwealth Fund, the Milbank Memorial Fund and the Josiah Macy Jr. Foundation. In every respect, therefore, the committee is representative of all varied and broad interests that are concerned in the problems of the extension and improvement of medical service.

The Committee on Medicine and the Changing Order has not yet completely formulated the recommendations of its final report, which it expects will be published during the current year. However, the special message sent to the Congress by President Truman on Nov. 19, 1945, in which he urges the creation of a system of national compulsory medical insurance as well as other changes in the organization of medical care in the United States, impels the New York Academy of Medicine, through its Committee on Medicine and the Changing Order, to issue a statement at this time.

The New York Academy of Medicine is essentially in accord with the objectives reflected in the President's message. It is fully cognizant of the many lacks in medical care which now exist in the United States and which most certainly are in need of urgent remedy. It agrees that the health of the people is a matter of national concern and that every effort should be made to provide all our people with adequate medical care and the opportunity to achieve and enjoy good health. However, while endorsing President Truman's objectives, the Academy cannot endorse all of the methods he proposes for their attainment.

We are mindful of the great achievements of modern medicine, which have been effected, particularly during the last forty years, under the prevailing system of medical practice. By the side of the many admitted inequities in the distribution of medical care stands the attested fact that the health record of the United States, as witnessed by mortality and morbidity statistics, is today outstanding. No nation of comparable size and complexity, with as many varieties of circumstances under which its people live and work, has attained as much in fostering the health of its citizens as has the United States. Before, therefore, venturing on untested schemes which involve abrupt nationwide changes we must strive to determine whether we could not achieve the objectives which the President has voiced and which we share more quickly and more effectively by procedures that are, in our opinion, less hazardous.

The President's message advances five specific recommendations. With the first of these, advocating the construction of hospitals and related facilities, the Committee on Medicine and the Changing Order is substantially in accord. In many rural areas and even in suburbs of large cities there is a serious shortage of hospital and clinical facilities. This problem, however, will not be solved by the simple procedure of erecting structures and creating physical facilities; for, to be effective, hospitals and health centers must be adequately staffed with competent personnel. At the present time there is not available, and the immediate future does not promise to provide, a large enough body of trained and experienced medical and other personnel to warrant a rapid expansion of hospital facilities. We are currently confronted with the distressing example of the grossly inferior hospitalization and medical care provided for our veterans. As in every other effort to extend and improve medical facilities, we are compelled to recognize the numerous interrelated factors—physical facilities, economic resources, medical education and training, and public education—each of which has a profound bearing on the other, and all of which, collectively, are essential to the expansion and improvement of the medical services.

The President's second recommendation proposes an expansion of public health, maternal and child health services. This too the committee endorses in principle, with the caution, however, that experimentation is needed to avoid the sacrifice of valuable facilities and procedures which are already functioning. We are not here venturing into virgin territory. Public health, as well as maternal and child health, has been the concern of the American public and of American government for many decades, and particularly during the last forty years. We already have many excellent facilities, some run by state and local official organizations, others by voluntary and professional groups. Whatever expansions are undertaken should be developed in relation to these existing facilities.

The President's third proposal, to advance and support medical education and research, the Committee on Medicine and the Changing Order also endorses in principle. Here too, however, governmental aid to medical education and research should be of such character that it fosters and supports but does not direct and dominate. The Academy, through its Committee on Public Health Relations, has already taken its stand on these matters in a resolution endorsing, with some slight modification, the Magnuson bill now before the Congress.

The President's fifth recommendation, that means should be devised for protecting workers against loss of wages resulting from sickness and disability, the committee endorses without reservation.

There remains to be considered the fourth of the President's recommendations, namely national compulsory medical insurance, labeled in the official address as "prepayment of medical costs." To this recommendation the Academy is definitely opposed. As a result of the studies of its Committee on Medicine and the Changing Order, the Academy is convinced that any scheme of national compulsory medical insurance at this time would lead to most unfortunate results affecting the health of the public and the science as well as the practice of medicine.

It is not possible, under the circumstances, to discuss this fourth proposal in the President's message in any detail. The proposed scheme of prepayment of medical costs based on the enactment of compelling legislation and the collection of tax moneys is deceptive in its simplicity. Our studies have shown that the problem of providing for extensions of medical care is far from simple; indeed it is extremely complex, for it involves not only readjustments in the care of the sick but also, among other factors, the structure and content of medical education and the broad fields of social, industrial and preventive medicine. Payment for medical care through insurance represents only a fragment of the problem. It should be obvious that insurance cannot do more than spread a portion of the risk of costs. It cannot solve our medical problems because it cannot create the services essential for improving and extending medical care. It will not of itself teach the public to appreciate or to utilize effectively whatever medical resources are even now available to it. Insurance is most certainly incompetent to raise the quality of medical practice.

On the contrary, there is a wealth of experience which shows that under compulsory medical insurance on a nationwide scale though a larger number of people receive medical care, the quality of medical service rendered by the individual physician tends to decline.

Under our present forms of rendering medical care, which the President indicates would remain unchanged, the direct payment for medical services by a third party, the insurance fund, introduces a fundamental disturbance in the attitudes of both the subscribers and the doctors. The patient is tempted to demand more attention than he requires. Still more serious is the temptation of the practitioner to add to his income by rendering unnecessary service. Excessive demand, on the one hand, and unnecessary service, on the other, inevitably result in superficial performance. The financial rewards for volume of service and the pressure of patients constitute a combination of influences which to many is irresistible. This has been the recent experience in New Zealand, and it has been our own experience in the operation of workmen's compensation insurance.

Unfortunately, the alternative method of payment under an insurance scheme, namely capitation, whereby an annual stipend is paid to the physician for each insured patient on his list, likewise produces objectionable results. When the financial reward is fixed, some physicians are tempted to render as little service as possible.

Experiences abroad and in the United States by no means preclude the success of carefully organized prepayment medical insurance plans in this country. At the present time, however, we in the United States do not know how best to develop such medical insurance. We need a good deal of carefully planned and regulated experimentation. We lack experience not only from the actuarial angle but, what is still more important, from the service angle. We must realize also that we have no basis in our own experience on which to estimate what the contemplated extensions in medical service are likely to cost. We do know from European experiences that, under national compulsory medical insurance, even as the general level of medical practice is lowered its costs are raised. Furthermore, in the light of our own political history we must recognize that wherever there are available for distribution large sums of "government money" there also thrive political influence and political patronage.

The Academy's Committee on Medicine and the Changing Order is not concerned with maintaining the "status quo" in medicine. It has devoted several years to exploring new methods for correcting the many deficiencies in medical service. As a result of its studies it is convinced that the problems involved in the improvement and extension of medical service to all the people of the United States are numerous and diverse; hence, the ways to their possible solution are, and must be, of many kinds. In the opinion of the committee the expansion of medical services indicated in President Truman's first, second and third recommendations, with the modifications noted, would serve immediately to extend and to improve the quality of medical care rendered to our people and to lay the foundation on which a better organization of the medical profession could be achieved.

In opposing the fourth recommendation, calling for immediate nationwide compulsory medical insurance, the committee maintains that the problem of payment can be solved by methods less menacing to the high standards of medical service which have developed in this country over the years. To this end it offers a series of interrelated proposals designed not only to make more medical service available to our people but also to improve its quality. These proposals are not easily summarized out of their context in the final report, but it is possible at least to indicate the diverse paths on which the committee believes we must travel if we are to reach an orderly solution of the many problems which today confront us.

The committee recommends, among other things, that voluntary, nonprofit insurance be given a thorough trial as a means of providing medical services for low income families. At the same time it recognizes that plans of this nature cannot be expected to solve the entire problem and that in certain instances, for example when private resources are inadequate, government support, preferably in the form of federal or state grants-in-aid, will be required. The committee holds further that it may be desirable to conduct careful experiments at state and local levels with compulsory government insurance, so that we may have in the near future comparative experience with the relative values of voluntary and compulsory procedure.

In order to raise the quality and to round out the scope of medical care extended under any system of payment, the committee favors not only a number of revisions in medical education but the gradual extension of group practice. Under this form of practice, which promises far reaching improvements in the organization of practitioners and specialists, doctors conduct a joint enterprise in medical care in close cooperation with high grade hospitals, sharing a common plan of remuneration and responsibility for the quality of service they render. The group system is especially attractive to young physicians entering the practice of medicine who have been accustomed to work together while in training as hospital residents and who desire to retain their relationship to the hospital, with all its educational and professional advantages. Even those physicians who settle in rural communities should eventually be able, under a well planned system of medical care, to retain or establish such a relationship to a medical center.

It is essential, moreover, that medical group practice units be organized also in relation to teaching hospitals, since an extension of prepaid medical care to all people of low income must inevitably have important repercussions on medical education and research. The medical schools, for their part, must change their methods if they are to train doctors for a new form of medical care; and no form of medical care can afford to neglect the advantages to the patient of teaching and research.

Because it is much more economical—not alone in terms of money but in human values—to prevent the occurrence of illness than to cure it, the committee places special emphasis on preventive medicine in all forms of practice. To the same end, immediate efforts should be made to provide basic public health services for communities which are now lacking in those services. The committee insists also that further education and enlightenment are sorely needed by all groups concerned—by government agencies, by the medical professions, by private welfare organizations and, most of all, by the public at large.

What is wanted at this time, therefore, is not an overall national compulsory scheme but a variety of studies and experiments conducted by smaller units at local levels. Specific recommendations as to how such pilot studies and experiments may be carried out will be contained in the final report of the committee.

It is the conviction of the Academy that an evolutionary transformation of medical practice is essential if the benefits of modern medicine, and especially of preventive medical services, are to be made more freely available to the people. It is far better to proceed in a somewhat slower but more orderly manner than to expose the nation to the risks, as yet unmeasurable, which immediate adoption of national compulsory medical insurance would entail.

Washington Letter

(From a Special Correspondent)

Jan. 7, 1946.

New Virus Disease with 40 per Cent Death Rate

Results of work by the National Institute of Health have been reported by Drs. B. J. Olsen and C. L. Larson of the U. S. Public Health Service on a new virus disease with a 40 per cent death rate reported to have entered the United States. The virus is said to belong in the same general classification as psittacosis, but it spreads directly from one person to another. The malady has pneumonia-like symptoms, and when it first appeared it was confused with the virus type of this disease. The virus was isolated at laboratories of the Louisiana State Health Board and the National Institute of Health. Its only recorded appearance was in Louisiana two years ago and it proved fatal in 8 of 19 cases. The virus was obtained in almost pure form at the Washington laboratories and a technic was developed for producing it in chick embryos. It quickly killed rats, mice and guinea pigs but had no effect on muskrats or ferrets. The virus would not respond to the sulfonamide drugs or to penicillin.

Veterans' Need for Hospital Highlights National Shortage

The appeal by the Veterans Administration to army, navy and civilian hospitals for the temporary loan of 40,000 beds to care for veterans has prompted newspapers to interpret the request as an indication of a critical national hospital shortage. The Veterans Administration reveals that its hospitals have beds for slightly more than 70,000 patients but that 150,000 beds will be needed by 1950 for members of the armed forces. The Navy has undertaken to supply 10,000 beds by September and the Army has been requested to furnish a similar number. Civilian hospitals are already overcrowded, and it has been proposed that a survey of civilian hospital facilities would be useful.

Medical Society Organized to Meet Cold Epidemic

Of general interest is the way in which the District of Columbia medical societies organized to provide medical care for families without a family doctor during the epidemic of colds. Dr. Walter R. Stokes, chairman of the society's committee on public relations, said "We recognize that many persons are having difficulty locating physicians to make home calls. We would suggest to them, if they do not have their own physicians, that they call the Medical Bureau, which will put them in touch with a doctor. Many doctors recently returned from the military service are listed with the bureau." Secretary Theodore Wiprud said about two hundred physicians are listed to accept emergency calls.

National Research Council Fellowships Resumed

Applications must be in by February 1 for special fellowships established by the National Research Council to enable young scientists whose graduate studies were interrupted by the war to resume their work toward the doctorate. The fellowships were made possible by a grant of $335,000 from the Rockefeller Foundation to help fill up the war-created gaps in research workers' ranks with the least loss of time. Successful applicants will be given $1,200 a year for single persons and $1,800 for married men, with an additional allowance up to $500 a year for tuition fees.

Allocation Controls Restored on Penicillin January 1

A sharp increase in demand for penicillin prompted the Civilian Production Administration to restore allocation controls over the drug, effective January 1. Prevalent illness throughout the country is blamed for the heavy current demand. Allocation of penicillin is expected to insure sufficient supplies for requirements of the Army, Navy, Veterans Administration, the Public Health Service and other domestic consumers.

Trial of Artificial Limb Makers Set for March 11

A Federal District court has set March 11 for the trial of a trade association, forty-five corporations and thirty-four individuals charged with violations of the Sherman Anti-Trust Act in the manufacture and sale of artificial limbs.

Lemke Presses for Bill Against Experiments on Animals

"Immediate action" will be sought by Representative Lemke, Republican of North Dakota, on his bill to end animal experimentation in Washington, when Congress comes back from its vacation. He says he will ask Representative McMillan, Democrat of South Carolina, chairman-elect of the House District Committee, for an early hearing. The Lemke bill provides a fine of $500 and imprisonment up to one year or both for any surgical operation performed in the District of Columbia on a dog other than for strictly curative purposes. The bill was introduced a year ago January 3 but has been dormant before the committee. Senator Langer, Republican of North Dakota, says he will give the bill full support when it reaches the Senate.

Veterans Administration to Give Veterans Preference

War veteran doctors will get preference in hiring by the Veterans Administration, Gen. Omar Bradley, administrator, assured after President Truman signed the controversial measure creating a separate medical department in the agency. Full page advertisements are being published to acquaint the profession with new opportunities at good salaries in the agency for medical men. The bill assures a complete new deal in medical care for veterans. It was approved against strong opposition of the Civil Service Commission. Major Gen. Paul R. Hawley, Acting Surgeon General, will continue temporarily as chief of the medical service, which will be put into effect immediately.

Tuberculosis the Principal Health Scourge in Greece

John Dula, senior child welfare specialist of the United Nations Relief and Rehabilitation Administration, reports that tuberculosis is the most virulent scourge in Greece today, with malaria a runner up. He saw entire villages in which every citizen seemed to be suffering from tuberculosis. Although there is less starvation, disease is widespread because many persons are still crowded together in dugouts, basements and lean-tos. Through joint efforts of the UNRRA, the Greek War Relief Association and the Greek government, vitamin foods are being served daily to thousands of child war victims.

Use of Atom for Health and Industry

The theory and production of atomic energy and the use of fissionable materials for health and industry would be studied by an atomic energy commission proposed in a bill introduced in Congress by Senator Brien McMahon, Democrat of Connecticut. The commission would have broad powers over the entire field of atomic science. Sixty days after passage of the proposed act it would be unlawful for any person to own or export fissionable materials. Senator McMahon is chairman of the special Senate Committee on Atomic Energy.

General Kirk and Mrs. Truman Launch Nurse Memorial Campaign

The campaign to raise $2,000,000 for a Nurse's National Memorial in Washington was opened here with Major Gen. Norman T. Kirk, Surgeon General of the Army, as principal speaker, and Mrs. Harry S. Truman guest of honor. After the luncheon Mrs. Dwight D. Eisenhower and wives of other high ranking army and navy officers who are sponsors signed certificates for those making contributions.

Duplication of Health Services in the Government

In an article revealing duplication in federal government agencies, Lindsay C. Warren, U. S. Comptroller General, points out that all public welfare activities are supposed to have been coordinated by the Federal Security agency. However there are still some half dozen agencies working on nutrition programs and research. These were two of many examples of waste cited by Mr. Warren.

Lehman Says UNRRA Needs More Funds

Herbert H. Lehman, director general of the United Nations Relief and Rehabilitation Administration, said that despite a new congressional authorization of $1,350,000,000 for 1946 the agency will have only sufficient funds to meet the most critical needs of devastated nations. With its current funds UNRRA must neglect many areas where help is needed.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education and public health.)

ARKANSAS

District Meeting.—The Ninth Councilor District Medical Society was addressed at Harrison December 14 by Drs. Charles T. Chamberlain, Fort Smith, on "Heart and Aviation," and by Frederick H. Krock, Fort Smith, on "Medical Practice in the South Pacific."

CALIFORNIA

Industrial Hygiene Change.—Dr. Douglas G. MacPherson, San Francisco, formerly director of the Los Angeles City Division of Industrial Hygiene, is now chief of the Los Angeles County Division of Industrial Hygiene. He replaces Dr. Hugh E. Dierker Jr., who has become medical director of the Southern California division of General Motors Corporation, according to the *Industrial Hygiene News Letter.*

Lawrence Kolb Accepts New Mental Position.—Dr. Lawrence Kolb, Washington, D. C., formerly chief of the mental hygiene division of the United States Public Health Service, has been appointed deputy medical director of the State Department of Mental Hygiene in California. The first of its kind in California, the post was created by the 1945 legislature on the recommendation of Mrs. Dora Shaw Heffner, director, according to *Modern Hospital.*

Lectures by Dr. Owen Wangensteen.—Dr. Owen H. Wangensteen, professor and head of the division of general surgery, University of Minnesota Medical School, Minneapolis, presented a lecture on December 14 before Alpha Omega Alpha at Stanford University School of Medicine, San Francisco, entitled "Intestinal Obstructions." On December 15 he presented a lecture before the California Academy of Medicine, San Francisco, entitled "The Ulcer Problem."

CONNECTICUT

James Hamilton Leaves New Haven Hospital.—James A. Hamilton, who has been director of the New Haven Hospital, New Haven, for seven years, has announced his retirement, effective January 1. Mr. Hamilton will join a group of other hospital administrators to establish a hospital consulting service. He will continue as lecturer in hospital administration at Yale University School of Medicine, New Haven, according to *Modern Hospital*

Survey of Tumor Clinics.—Dr. Nestor William Wawro, New Haven, has been chosen to conduct a study of the clinical aspects of the tumor clinics of Connecticut. The appointment was made by the committee on tumor study of the Connecticut State Medical Society, which is cooperating with the Association of Tumor Clinics. Dr. Wawro's studies will fit into the joint plan of the basic audit or survey sponsored by the Connecticut Cancer Society. The entire project was initiated to guarantee that the funds of the society would be spent wisely.

State Society Holds Dinner Meeting.—A feature of the semiannual meeting of the house of delegates of the Connecticut State Medical Society, New Haven, December 13, was a dinner session attended by the society of the woman's auxiliary. Among the speakers at the dinner were:

Dr. Joseph H. Howard, Bridgeport, president of the Connecticut State Medical Society.
Mrs. James Raglan Miller, Hartford, president, woman's auxiliary.
Dr. John F. Kenney, Pawtucket, president, Rhode Island Medical Society.
Dr. Roger I. Lee, Boston, president, American Medical Association, the title of whose address was Timeo Danaos et Dona Ferentes.
Dr. Morris Fishbein, Editor of The Journal, who spoke on Medicine in the Postwar World.

INDIANA

Cancer Society Organized.—The Indiana Cancer Society, Inc., has been created with William H. Ball, Muncie, as president and Mrs. A. L. Taggart, Indianapolis, secretary. The purpose of the organization is to collect and disseminate information concerning the symptoms, diagnosis, treatment and prevention of cancer and to aid, in cooperation with accredited physicians, in the establishment, development, equipment and maintenance of hospitals, clinics, laboratories and other facilities for the care of cancer patients and for research into the cause and cure of cancer.

IOWA

Personal.—Dr. Max L. Durfee, Cedar Falls, has resigned at the University of Oklahoma to return to his position as director of the student health center at the Iowa State Teachers College.——Dr. Melvin T. Johnson has been named medical director of Iowa Public Health District number 5, Fort Dodge, succeeding Dr. Forrest J. Austin, now of Omaha, resigned.——Robert E. Neff, Ph.D., Iowa City, has been appointed superintendent of the Methodist Hospital, Indianapolis.

KANSAS

Graduate Medical Education.—On January 21-25 a course on physical medicine and occupational therapy will be held at the University of Kansas School of Medicine, Lawrence-Kansas City, Mo. This is the second course in a series planned by the new division of graduate medical education, of which Dr. Edward H. Hashinger, professor of clinical medicine, is acting director. The first course was held October 29-November 2 on general therapeutics. Other courses in the series include:

Pediatrics, February 25-March 1.
Internal medicine, psychiatry and dermatology, March 25-29.
Eye, ear, nose and throat, April 15-19.
General surgery and radiology, May 13-17.
Obstetrics and gynecology, June 17-21.

MASSACHUSETTS

Refresher Course for Discharged Medical Officers.—Harvard Medical School will offer a six months refresher course, beginning February 1, to medical officers discharged from the armed forces. The course, under the supervision of Dr. Eugene C. Eppinger, Boston, assistant dean, formerly a colonel in the army, will emphasize current scientific knowledge and theories and advances in the medical field. Instruction will be given by the regular members of the preclinical and clinical departments of the medical school. In offering such a course the medical school is attempting to assist individuals who on separation from the service wish to obtain the latest knowledge in the broad field of medicine in preparation for reentering a civilian medical career. Dr. Eppinger was most recently chief of the communicable disease branch of the Medical Consultants Division, Office of the Surgeon General, in Washington, and is now returning to Harvard Medical School, Boston, as assistant dean in charge of courses for graduates.

MICHIGAN

Changes in Health Personnel.—Dr. Russell E. Pleune, Hancock, formerly director of the Houghton-Keweenau-Baraga Health Department and recently released from the army, has been appointed deputy commissioner of health of the upper peninsula with offices in Escanaba, with the state board of health. Dr. Pleune will succeed Dr. Wilber J. M. Menke.

Upjohn to Erect New Antibiotic Plant.—With the purchase of 500 acres 4 miles southeast of the city, the Upjohn Company, Kalamazoo, recently announced plans to expand its facilities for the manufacture of antibiotics. Streptomycin, as yet produced only in pilot laboratory quantities, will be put into large scale production when the new plant is finished. George F. Cartland, Ph.D., who has been head of the company's research work in antibiotics, will supervise the operation of the new unit under M. C. Hart, Sc.D., vice president and director of research.

MONTANA

Personal.—Dr. Carl W. Hammer, Oxford, Mich., has been named assistant professor of health education at the Montana State College, Bozeman, and director of the Student Health Clinic, it is reported.——Dr. Harry V. Gibson, health officer for a number of years of Great Falls, has been placed in charge of the reorganized health department in Great Falls and Cascade County.——Dr. Raymond L. Eck, Lewistown, has been named coroner of Fergus County.

NEW JERSEY

Hospital Overcrowded, Patients Cared For in Home.—With 691 patients crowding the Newark City Hospital, a plan for home treatment of the sick, beginning December 14, was announced in the *New York Times.* Patients will be treated by private physicians in their homes at rates of $2 a visit during the day and $3 at night. The municipality will pay the physician's fees on proof of the patient's indigence. Otherwise the patient will pay.

NEW YORK

Millions to Be Spent in Syracuse Expansion.—Syracuse University College of Medicine is planning an expansion program to cost between $20,000,000 and $25,000,000 in the next ten years, newspapers report. The program will include an expansion of the medical center, a new university hospital and a ten story addition to Memorial Hospital.

Personal.—Dr. Archibald S. Dean, district state health director, on November 19 was appointed acting head of the department of hygiene and public health, University of Buffalo School of Medicine, filling temporarily the position formerly held by Dr. William T. Clark, now superintendent of the Masonic Home and Infirmary, Utica.

Walter Pamphilon Named Assistant Commissioner of Mental Hygiene.—Dr. Walter M. Pamphilon, Willard, assistant director of the Willard State Hospital, has been named assistant commissioner of the New York State Department of Mental Hygiene. According to the *Psychiatric Quarterly*, Dr. Pamphilon, who had previously been detailed as acting medical inspector, has been assigned to the inspection service of the department and will be on duty in the New York City office for part of his time, besides assisting with the department's program for postwar building. Graduated at the University of Toronto Faculty of Medicine in 1922, Dr. Pamphilon entered the state service at Buffalo State Hospital in 1922. He had been at Willard since 1933, when he went there as first assistant physician, later being designated as assistant director. Dr. Kenneth K. Slaght, assistant director at Rochester State Hospital, has been named acting medical inspector.

New York City

The Harvey Lecture.—Max Delbruck, Ph.D., assistant professor of physics, Vanderbilt University, will deliver the fourth Harvey Lecture of the current series at the New York Academy of Medicine on January 17. Dr. Delbruck will speak on "Experiments with Bacteriophages."

Dr. Merrill Wins the Modern Hospital Award.—Dr. Ambrose P. Merrill Jr., superintendent of the Home for Incurables, is the winner of the 1945 Modern Hospital Gold Medal Award. His prize winning article, "Suspect Nurseries—A Case History of Experience at St. Luke's Hospital, Chicago," appeared in the *Modern Hospital* for January 1945, shortly after he moved to New York from St. Luke's Hospital, Chicago, where he served as medical director for three years. Honorable mention certificates were awarded to Dr. Edmund E. Walker, superintendent, Springfield Hospital, Springfield, Mass., and Jennie F. I. Dixon, director of social service at Springfield Hospital, for their article "Chronic Disease Ward," published in the June 1945 issue of the *Modern Hospital*.

Blood Bank for Cancer Patients.—The establishment of a field army blood bank for cancer patients at Memorial Hospital was announced December 11. Registration of donors will be handled at 2 West 106th Street, the Old Memorial Hospital Building, which is also Field Army headquarters. Blood donations by members of the Field Army who volunteer will be taken at the New Memorial Hospital, 444 East 68th Street. Blood of those acceptable will be used for cancer patients who are unable to pay a professional donor. If blood is given to a patient able to pay, the money received will be placed in the general fund of Memorial Hospital, where it will accrue to the benefit of cancer patients. The service will be extended to other hospitals as required.

Medical and Hospital Librarianship.—The School of Library Service of Columbia University announces for the 1946 summer session a program of related courses on medical and hospital librarianship. One course, medical library administration, aims to equip librarians to administer medical, nursing, pharmaceutical and dental libraries. Administrative matters, such as the cataloguing and classification of medical literature, personnel problems, budgets, the rare book room, reference service and the selection and purchase of books and periodicals, will be presented. Emphasis also is to be laid on the literature of medicine and its collateral sciences. A second course, library work with hospital patients, treats the values of library work with patients, the facts and conditions affecting its performance, the selecting of books and the managing of collections for use in it, and ways of dealing with ill people and meeting their needs. Brief attention is given to the conducting of libraries for the physicians and nurses of a hospital staff. Field assignments and visits of observation may be arranged for students desiring to supplement their study in this way. Some may like also to pursue certain related library school courses, notably psychologic foundations of reader guidance and reading interests and habits of adults, or several guidance and psychology courses given elsewhere on the campus. Further information may be obtained by addressing the Dean, School of Library Service, Columbia University, New York 27.

NORTH CAROLINA

Medical and Surgical Symposium.—The third annual medical and surgical symposium of the Watts Hospital, Durham, will be held February 13. Among the speakers will be:

Dr. Wilburt C. Davison, Durham, Some Remarks on Postgraduate Medicine.
Lieut. Col. Louis A. M. Kruse, Camp Butner, Some Hemolytic Processes Including the Rh Factor.
Dr. Norris W. Vaux, Philadelphia, The Treatment of Habitual Abortion.
Dr. Edward A. Strecker, Philadelphia, Psychiatry Speaks to Democracy—About Mothers and Moms.
Dr. Arthur M. Shipley, Baltimore, Diverticulitis of the Colon.
Dr. James E. Paullin, Atlanta, Ga., The Relationship of Medical Practice to Gerontology.
Dr. Louis Hamman, Baltimore, General Features of Periarteritis Nodosa, Particularly from the Standpoint of Diagnosis.
Dr. Isidor S. Ravdin, Philadelphia, The Pathologic Physiology of Biliary Tract Disease.
Dr. Eugene P. Pendergrass, Philadelphia, The Roentgenologic Aspects of Biliary Tract Disease.

In addition there will be clinical pathologic conferences conducted by the members of the staffs of the Medical College of Virginia, Richmond, and the University of Virginia Department of Medicine, Charlottesville.

NORTH DAKOTA

Changes in State Health Department.—Dr. William M. Smith, Rome, N. Y., from 1937 to 1942 assistant district state health officer in New York State and recently released from military service, has been appointed director of the division of preventable diseases of the North Dakota State Department of Health, Bismarck. Dr. George F. Campana, Albany, state health officer, has been acting health officer of the division. Dr. Robert R. Kling, Rochester, N. Y., has been chosen tuberculosis consultant in the division of preventable diseases.

OHIO

Health Officer for Twenty-Five Years.—Dr. Harley J. Powell, Bowling Green, health commissioner of Wood County for more than twenty-five years, was honored with a luncheon recently to mark the occasion and in recognition of his retirement, which was planned for the end of the year.

New Division Chiefs in State Departments of Health.—Dr. Percy L. Harris, Ravenna, health commissioner of Portage County since 1938, has been appointed chief of the division of communicable diseases of the Ohio State Department of Health, according to the state medical journal. Dr. Thomas F. Mancuso, acting director of the division in industrial hygiene, Oregon State Board of Health, Portland, has been appointed chief of the division of industrial hygiene of the Ohio Department of Health. Dr. Charles M. McGill, who has been serving in the Ohio position (THE JOURNAL, Oct. 20, 1945, p. 564), has taken over the Oregon activity.

Mental Hospital Dedicated.—Ohio's first receiving hospital for mental patients, the first of five such hospitals for which the state legislature made appropriations in the $23,000,000 expansion program of the state welfare department, was opened at Youngstown on November 20. The 85 bed hospital, which was the abandoned Youngstown Municipal Hospital, will serve fourteen northeastern Ohio counties. Others are to be located at Cleveland, Akron, Athens and Columbus. Dedication speeches were made by Frazier Raams, state welfare director, and Dr. Frank F. Tallman, Columbus, state commissioner of mental diseases, according to the *Ohio State Medical Journal*.

PENNSYLVANIA

Philadelphia

Survey of Tuberculosis Among the Diabetic.—The board of directors of the Philadelphia County Medical Society endorsed the proposed survey of the incidence of tuberculosis among diabetic patients to be conducted by the Philadelphia Tuberculosis and Health Association. The endorsement was influenced by favorable recommendations by the society's committees on diabetes and tuberculosis.

Course for Medical Laboratory Technicians.—The Jewish Hospital offers a twelve months training course for medical laboratory technicians and prepares young women for the examination given by the Registry of Medical Technologists of the American Society of Clinical Pathologists. Students are accepted who have had two years of college work with suitable college courses in chemistry, biology and physics. The course includes practical and theoretical training in bacteriology, serology, hematology, clinical microscopy, histology, parasitology and biochemistry. Prospective students should file a copy of their college credits with the director of laboratories and with the Registry of Medical Technologists, Ball Memorial Hospital, Muncie, Ind. Dr. Charles Weiss is the director of laboratories.

Pittsburgh

Special Society Election.—Dr. James A. Mansmann is the new president of the Pittsburgh Allergy Society; Dr. Lester L. Bartlett is secretary-treasurer.

Psychiatrist Recommended as Adjunct to Behavior Clinic.—Establishment of a psychiatric clinic as an adjunct to the behavior clinic in combating crime was proposed in the annual report of Dr. Edward E. Mayer, supervising director of the clinic, to the Allegheny County common pleas judges. Recalling that the behavior clinic provides the court with psychologic interpretations of prisoners, Dr. Mayer said that maladjusted prisoners with deep seated personality problems "should have the opportunity to be referred to a psychiatric clinic treatment." He further stated that such a clinic dealing with "the entire family situation would provide help for the excessive drinker, assist in reconciling couples seeking divorce and assist in adjusting the sexual psychopathic."

RHODE ISLAND

Cancer Detection Clinic.—A cancer detection clinic for women has been opened at the Rhode Island Hospital, Providence. The clinic is intended for semiannual physical examinations of well persons. It is free and will be open to any woman who wishes to attend. If any disease condition is found, the patient will be referred back to her own doctor or to one of a group of men who will be designated by the Rhode Island Medical Society.

TENNESSEE

New Professor of Anatomy.—Frank Harrison, Ph.D., assistant professor of anatomy, University of Tennessee College of Medicine, Memphis, has been appointed professor and head of the department of anatomy, effective April 1. Dr. Harrison succeeds Dr. Kendall B. Corbin, Memphis, who is to join the staff of the Mayo Clinic, it is reported.

Changes in Health Personnel.—Dr. Roy J. Settle, recently discharged from the army medical corps, has been appointed director of the Williamson County Health Department, succeeding Dr. William B. Farris, who went to Gallatin. Dr. Willoughby J. Rothrock Jr., Philadelphia, has been assigned by the U. S. Public Health Service as director of the tuberculosis control program for the Chattanooga-Hamilton County Health Department. Dr. Marion G. Fisher, Washington, has resigned as director of the Washington County Health Department, it is reported.

Sentence Two to Fifteen Years for Kidnaping Physician.—Two youths, both of Dayton, one 18 years of age and one 21, pleaded guilty in criminal court October 31 to charges of kidnaping and robbing Dr. German P. Haymore, Chattanooga, and were sentenced to serve fifteen years in the state penitentiary. According to the Chattanooga *Times* Judge Frank S. Darwin imposed a sentence of ten years each on the charge of kidnaping and added a prison term of fifteen years each in the robbery cases, the sentences to run concurrently. The physician was kidnaped early in August while sitting in his automobile.

UTAH

Regional Meeting for Clinic Research.—The first regional meeting of the Western Section of the American Federation for Clinical Research was held under the auspices of the University of Utah School of Medicine, Salt Lake City, at the Salt Lake County General Hospital, Salt Lake City, December 28-29. Among the speakers were:

Dr. Paul M. Aggeler, San Francisco, Platelet Counts and Platelet Function.
Dr. Louis S. Goodman, Salt Lake City, Experimental Determination of Anticonvulsant Activity.
Dr. Franz R. Goetzl, Oakland, Calif., The Influence of Acetylsalicylic Acid on Analgesic Effects of Induced Pain.
Dr. Carl G. Heller, Portland, Ore., Alarm Reaction in Burned Patients.
Dr. Abe Ravin, Denver, Congo Red in Myasthenia Gravis.
Dr. Ferdinand R. Schemm, Great Falls, Mont., The Effect of High Fluid Intake on Venous Pressure.
Dr. Maxwell M. Wintrobe, Salt Lake City, Studies on the Mechanism of Anemias of Infection.
Dr. Irving S. Wright, New York, Experiences with Dicumarol in the Treatment of Coronary Thrombosis.

WASHINGTON

Personal.—Dr. Clifford S. Halvorsen has been named superintendent of the Northern State Hospital, Sedro Woolley, effective December 1. Since Dr. Halvorsen returned from overseas, he has been chief of the neuropsychiatric service at Madigan General Hospital at Fort Lewis. Dr. Halvorsen succeeds Dr. James W. Doughty, Sedro Woolley, resigned, who held the position for twenty-nine years.

Appointments to State Board of Health.—Mr. Irvin R. Vaughn, who was appointed as acting state registrar with the state department on November 26, will be the acting head of the public health statistics section. Mr. Vaughn was formerly director of public health education and assistant director of vital statistics for the state board of health of South Dakota. Dr. Clarence Arthur Elden was appointed obstetric consultant with the state department of health on November 15 and will work in the maternal and child health and crippled children's section. Dr. Elden had previously been for thirteen years assistant professor of obstetrics and gynecology at the University of Rochester School of Medicine and Dentistry, Rochester, N. Y., and also was in private practice during that time.

WEST VIRGINIA

Mental Clinics.—Beginning January 1, semimonthly clinics will be conducted at Spencer State Hospital (mental) by Dr. Edward F. Reaser, Huntington, assistant superintendent at Huntington State Hospital, and Dr. Orin R. Yost, newly appointed superintendent at Weston State Hospital (The Journal, Dec. 8, 1945, p. 1037). This is part of a new program agreed on by Dr. Reaser, Dr. Yost and Dr. Charles T. Taylor, superintendent of the Huntington institution, and Alfred L. Morris, Jodie, head of the Spencer State Hospital, for the treatment of patients at the three state mental institutions.

GENERAL

New Journal of Medicine and Allied Sciences.—The first number of the new *Journal of the History of Medicine and Allied Sciences,* to be published quarterly by Henry Schuman, was to make its appearance in January. Dr. George Rosen is the editor.

Southeastern Surgical Congress.—The Southeastern Surgical Congress will hold its next assembly at the Peabody Hotel, Memphis, March 11-13. Additional information may be obtained from Dr. Benjamin T. Beasley, secretary-manager, Southeastern Surgical Congress, Atlanta 3, Ga.

Orthopsychiatric Meeting.—The American Orthopsychiatric Association will hold its annual scientific meeting at the Hotel New Yorker, New York, February 14-16. Recently The Journal, in a list of continuation courses, noted that this meeting would carry a registration fee of $300. This fee should be $3.

New Review of Psychiatry and Neurology.—The *Quarterly Review of Psychiatry and Neurology* will be published in January, April, July and October, according to the Washington Institute of Medicine, Washington, D. C. Dr. Winfred Overholser, Washington, is editor in chief of the new publication.

Planned Parenthood Federation.—"The Challenge of Today's Children" will be the theme of the annual meeting of Planned Parenthood Federation of America at the Waldorf Astoria Hotel, New York, January 22-23; the session will observe the twenty-fifth anniversary of the founding of the original Birth Control League of America by Margaret Sanger. The second day's subject will be "Health Hazards Facing the World's Children."

George Darling Named Executive Secretary of National Groups.—George B. Darling, Dr.P.H., formerly president of the W. K. Kellogg Foundation, who since 1943 has been associated with the division of medical sciences of the National Research Council, Washington, first as executive officer of the committees on military medicine and later as vice chairman of the division, has been appointed executive secretary of the National Academy of Sciences and of the National Research Council.

Teaching of Russian in American Universities.—Chemists studied Russian in larger numbers than did other scientists, it was revealed in a recent survey among twenty-five universities conducted by the American Association of Teachers of Slavonic and East European Languages. Biologists, including physicians and medical students, came next, followed by physicists, including radio engineers. Of the institutions covered by the inquiry, twenty-one now accept or recommend

Russian in partial fulfilment of the language requirements for graduate degrees in science. In other universities, acceptance, although not decided on, is probable. About three hundred students were studying scientific Russian in the 1944-1945 school year in these universities, and over one hundred were studying general Russian. Organization of courses in Russian for scientists, wider acceptance by American universities of Russian for graduate degrees in science, and procurement of Russian technical books and magazines are urged by the committee on teaching scientific Russian of the American Association of Teachers of Slavonic and East European Languages. The survey stemmed from a progressive recognition of the importance for American scientists of closely following the published Russian researches in their fields. The committee held a meeting in Chicago December 27-29 to discuss the need.

Special Society Elections.—Dr. Raymond C. Beeler, Indianapolis, was chosen president-elect of the American Roentgen Ray Society at its recent meeting. Dr. Ross Golden, New York, was inducted into the presidency. Other officers include Drs. Francis F. Borzell, Philadelphia, and Ellis R. Bader, Cincinnati, vice presidents; Harold Dabney Kerr, Iowa City, secretary, and James Bennett Edwards, Leonia, N. J., treasurer. The 1946 meeting will be held at the Netherland-Plaza Hotel, Cincinnati, September 17-20.——At the annual meeting of the Central Society for Clinical Research November 2-3 in Chicago Dr. Roy W. Scott, Cleveland, was named president, Dr. Carl V. Moore, St. Louis, vice president, and Dr. Ford K. Hick, Chicago, secretary-treasurer.——At the twenty-eighth annual meeting of the National Malaria Society in Cincinnati, November 13-15, Dr. Mark F. Boyd, Tallahassee, Tenn., was inducted into the presidency. Mark D. Hollis, Atlanta, Ga., was named president-elect, J. A. Mulrennan, B.S.A., Jacksonville, Fla., vice president, and Martin D. Young, Sc.D., Columbia, S. C., secretary-treasurer.——At the twelfth annual meeting of the American Academy of Tropical Medicine, held November 14 at Cincinnati, Dr. James S. Simmons, M. C., Washington, D. C., was elected president, Dr. George K. Strode, New York, vice president, Ernest C. Faust, Ph.D., New Orleans, secretary, and Dr. Thomas T. Mackie, M. C., New York, treasurer.

Insurance Research Fund Starts to Function.—Grants totaling $126,000 to be used for research into the causes of cardiovascular diseases have been made to the medical schools of six universities by the Life Insurance Medical Research Fund, it was announced December 23 by Mr. M. Albert Linton, Philadelphia, chairman of the fund. The recipients of these grants, the first to be made by the fund since its organization by 147 life insurance companies last fall, are as follows:

Drs. Joseph Victor, department of pathology, and Dickinson W. Richards Jr., department of medicine, both of Columbia University College of Physicians and Surgeons, New York.

Drs. Maurice Visscher, department of physiology, and Arthur Kirschbaum, department of anatomy, both of University of Minnesota Medical School, Minneapolis.

Dr. Henry C. Bazett, department of physiology, University of Pennsylvania School of Medicine, Philadelphia.

Dr. Gladys J. Fashena, department of pediatrics, Southwestern Medical College of the Southwestern Medical Foundation, Dallas, Texas.

Dr. John R. Smith, department of internal medicine, Washington University School of Medicine, St. Louis.

Dr. John R. Paul, department of preventive medicine, Yale University School of Medicine, New Haven.

This is the largest amount to be devoted in any one year to research in this field, with a total of $3,500,000 in prospect over a six year period. The grants made by the fund were recommended by the medical advisory committee, of which Dr. Francis G. Blake, dean of Yale University School of Medicine, New Haven, is head and approved by the board of directors. Officers of the fund elected for 1946 were Mr. Linton, president of the Provident Mutual Life Insurance Company and the chairman during the organization period, elected chairman; Leroy A. Lincoln, president, Metropolitan Life Insurance Company, vice chairman; Leigh Cruess, vice president, Mutual Life Insurance Company of New York, secretary; Morgan B. Brainard Jr., assistant treasurer, Aetna Life Insurance Company, treasurer (The Journal, Dec. 29, 1945, p. 1279).

Sugar Research Awards.—A total of $45,000 will be awarded within the next five years by the Sugar Research Foundation, New York, for the development of demonstrated original knowledge about, or practical uses for sugar in medicine, agriculture, the arts, the industries or other fields of human endeavor as judged by their importance in terms of the advancement of knowledge and of the public benefit. On or about March 1 and of each of the three succeeding years an intermediate prize of $5,000 will be given for the most important discovery or invention of the nature described which has been made during the preceding year. On March 1, 1950 a grand prize of $25,000 will be given for the most important discovery or invention which has been made during the five years preceding. An advisory committee has been created by the National Science Fund of the National Academy of Sciences, through which the awards will be administered. Members include:

A. Baird Hastings, Ph.D., Hamilton Kuhn professor of biochemistry, Harvard Medical School, Boston.

Charles F. Kettering, Sc.D., Dayton, Ohio, vice president of the General Motors Corporation and president, American Association for the Advancement of Science.

Carl S. Marvel, Ph.D., professor of organic chemistry, University of Illinois College of Medicine, Chicago, and president, American Chemical Society.

Edmund W. Sinnott, Ph.D., Sterling professor of botany, Yale University School of Medicine, New Haven, Conn.

Dr. William C. Stadie, John Herr Musser professor of research medicine, University of Pennsylvania School of Medicine, Philadelphia.

Vincent Du Vigneaud, Ph.D., professor of biochemistry, Cornell University Medical College, New York.

The Sugar Research Foundation has recently brought out a booklet concerning its prize award program and general activities. Since the organization of the foundation on June 10, 1943 it has awarded grants totaling $415,875.

LATIN AMERICA

Health Activities in Latin America.—*Examination of Food Handlers Halted Because of Cost to Government.*—Blood tests and physical examinations for food handlers in the cities of Panama and Colon have been stopped by the Department of Health for the Republic, it was announced November 10 by Dr. Alberto Navarro, director of public health. Dr. Navarro said that the tests will no longer be required because of the high cost to the government and because they have been found to be ineffective. Although the examinations have been halted, the department will continue to take measures to protect the public health, Dr. Navarro said. One of these will be a series of talks on personal hygiene to be held in various sections of the cities. Food handlers will be required to attend these lectures.

Course on Cancerology.—A postgraduate course on cancerology will be given at the Faculty of Medicine of the University of Havana for physicians of Cuba and of other countries under the direction of Dr. Nicolas P. Duany, Havana. The course will be given January 8-February 11. A diploma will be given to physicians who take the complete course. Further information can be obtained from the Secretariá de la Facultad de Medicina de la Universidad de la Habana, Havana, Cuba.

Proposed Medical Center and University.—The Venezuelan government will spend more than $10,000,000 in the construction at Caracas of a combination medical center and university which will be the largest and best equipped in Latin America, it is reported. A staff of over a hundred doctors, specializing in every branch of medicine, will be assigned to the new hospital with the purpose of improving the health rate of Venezuelan nationals. The government of Venezuela is said to be working on a national program which will greatly improve living conditions of the laboring classes.

Hospital News.—Plans are going forward for a maternity wing in the Amador Guerrero Hospital, to be known as the Roosevelt Memorial Ward.

Public Health Laboratory in the Dominican Republic.—In August 1945 an agreement was signed providing for a building to be used as a central public health laboratory of the Department of Health and Public Welfare of the Dominican Republic, according to the *Newsletter* of the Health and Sanitation Division, Institute of Inter-American Affairs. Adequate facilities for disease diagnosis by application of approved laboratory methods have not heretofore been provided, and present governmental facilities for such services are limited to certain diagnostic determinations and a restricted volume of specimen examinations. Services in the new laboratory will include clinical and laboratory examinations and related determinations as well as other public health activities, including instruction of students in laboratory technic through classes, demonstrations and practical experience and the maintenance of a library which will serve as a depository for reference material on laboratory and allied subjects. Operation of the services is to be inaugurated in accordance with an agreement between the National Department of Health and the Rockefeller Foundation, which provides funds for proper establishment of services and supervised operation for a period of three years. Construction of the building will be financed by the Servicio Cooperativo Interamericano de Salud Publica.

Foreign Letters

AC No 51

LONDON

(From Our Regular Correspondent)

Dec. 8, 1945.

Government Proposal to Abolish the Sale of Medical Practices

The medical profession is concerned by the statement in the House of Commons by the minister of health, Mr. Bevan, in which he affirms that the government believes it will be incompatible with the provision of an efficient national health service for the future exchange of medical practices and the creation of new practices within that service to be left entirely unregulated. Steps should be taken to secure a proper distribution of doctors to fit the public need. Intervention in this field will probably have the effect of preventing the sale and purchase of practices by doctors taking part in the new service. The government therefore has thought it right to give this warning. But there will be an appropriate measure of compensation to doctors in respect to loss of capital value directly caused by the new arrangements.

The effect of this pronouncement produced an immediate reaction from the British Medical Association. Its secretary, Dr. Charles Hill, who is also secretary of the negotiating committee of the medical profession with the government, stated in the *Times* that compensation for loss of capital values incurred by doctors is only just. The capital represented by a doctor's practice he has paid for or built up, and he relies on it for his retirement years. When a practice changes hands, what is transferred is good will; the patients themselves are free to accept the incoming doctor or choose another as they please. Many will not share the government's view that an efficient medical service can be secured only by such a fundamental change in the existing arrangements. If the government assumes to direct doctors where and how and with what colleagues they shall practice, the proposal is fraught with danger to the public and to professional freedom. Doctors, like other workers, should be free to choose the form, place and type of work they prefer, without government or other direction. For these reasons the attitude of the medical profession to any proposal to abolish the sale and purchase of practices can be determined only when it is known what is to be substituted for the existing arrangements.

New Medical Journals

The termination of the war has allowed the British Medical Association to carry out its intention to launch three new journals, which has been discussed for the past two years. These journals are the *British Journal of Pharmacology and Chemotherapy*, the *British Journal of Social Medicine* and *Thorax*. The first is to be published in cooperation with the British Pharmacological Society and the third with the Association for the Study of Diseases of the Chest. The proposal to publish the second journal came from Brig. F. A. E. Crew, Prof. Lancelot Hogben and Sir John Orr. Papers for the first journal should be sent to Dr. H. R. Ing, Department of Physiology, Oxford; for the second, to Brig. F. A. E. Crew, Usher Institute, Warrender Park Road, Edinburgh, 9; for the third, to Mr. N. R. Barrett, F.R.C.S., 2 Dorset Street, London, W. 1.

British and American Diets Compared

An important statement comparing food consumption in Britain, Canada and the United States has been issued by the Ministry of Food. It should be realized that the food conditions existing during the war continue in Britain, where aid to Europe has impeded recovery. This year the consumption of food in Britain is lower than in the two North American countries by about 5 per cent for fats, 15 per cent for sugar, 25 per cent for meat and milk, 40 per cent for eggs, 40 to 60 per cent for fruit and 90 per cent for poultry. On the other hand, consumption in Britain exceeds that of Canada and the United States by about 20 per cent for grain products, 50 to 100 per cent for potatoes and about 300 per cent for fish. Vegetable consumption is lowest in Canada and highest in the United States. The principal change in the British diet due to the war is a great reduction in meat; the war ration of the quantity of meat which can be bought weekly for 28 cents continues. This amounts to only about ¾ pound of meat weekly. The great increase in fish consumption is compensatory. Vital statistics have actually improved during the war. The people apparently have not suffered from the severe rationing which dislocated their ordinary food habits. Bread was never rationed, and sufficient food could be obtained although not the food desired.

PARIS

(From Our Regular Correspondent)

Nov. 28, 1945.

Organization of Scientific Research in France

Frederic Joliot-Curie, professor at the Collège de France, director of the National Center for Scientific Research, reported to the congress on the work effected since the liberation. There is a National Committee for Scientific Research comprising a membership of 280 working under the direction of 15 members. The amalgamation of pure and applied research has been effected. A second innovation (which has been made only in France) is the creation of a body of technicians from every profession which will assist investigators in their research. The center has endeavored to increase the number of research workers and technicians. In this respect progress is already to be noted, for in 1943 there were 450 research workers and 500 technicians, while in 1945 there were 750 and 970 respectively. The center has prepared plans for research and the building of new laboratories, established a scientific mission to Germany which will deal with the German scientific problem and return to France the appliances seized by the Germans. The center aims to establish close relations between it and the "departments" for research existing in the various ministries. With this in view the Superior Council of Colonial Research and the committee of coordination of research relating to the national defense have been created. There is a special course for young research workers, which consists in visiting laboratories of a given specialty, the following of specialized lectures at the university and, during the second year, working in laboratories abroad. The budget for scientific research, which amounted to 250,000,000 francs in 1945 (three times more than in 1944), will be half a million francs in 1946. Joliot-Curie proposed the organization of a national center for technical research and subsequently the creation of an office or of a ministry for scientific research. He emphasized that scientists must have control over the use of their own inventions. He recommended the creation of a "council of utilization" for relations between nations.

Persisting Bone Disease Through Calcium Deficiency

By the end of 1941 warning had been given by French doctors and research workers regarding the deficiency of calcium, phosphorus and vitamin D in the food of the population and the serious consequences which would result. They made several practical recommendations, but the Vichy government ignored this danger. In 1943 and 1944 and recently in his lecture before the Congress for the Advancement of Science, Justin Besançon has, with others, stressed the persistence of bone disease. The cases especially under consideration were Milkman's syndrome, symmetrical fissures and fractures and spinal osteoporosis, a coarse type of osteomalacia of two forms: (1) pain in the low lumbar region with sacral and femoral irradiations (patients come to be treated for pains presumed by them to be rheumatism); (2) kyphoscoliotic forms with heaping up of vertebrae and diminutions of height by 10 to 15 cm. In a hospital ward and in private practice Coste and Berger found 3 cases of bone disease in 1940, 5 cases in 1941, 8 cases in 1942, 24 cases in 1943 and 51 cases in 1944. Besançon contends that this phenomenon still shows a tendency to increase. Among Coste and Berger's patients 85 per cent are over 60 years of age and 62 per cent are women. Senility and the menopause play an important part in decalcification. The authors remark that, even after the liberation, a deficit of 1 Gm. a day of calcium still exists. This deficiency of calcium, persisting for years, should result in a complete decalcification of the skeleton, but most of the undernourished bodies adapt themselves to this calcium deficiency. The authors gave their patients 3 Gm. of calcium phosphate by mouth, adding to it, three times a week, 15 mg. (60,000 international units) of vitamin D. Because of shock and tissue reactions due to the impurity of the manufactured calcium gluconate, they did not give calcium intravenously. In several instances the treatment resulted in a partial or total failure.

PREVENTIVE MEASURES

In order to prevent these deficiency diseases, the Academy of Medicine has proposed to the Food Ministry that calcium be added to the bread. Since 1942 in Britain, 0.35 Gm. of calcium carbonate has been added to 300 Gm. of bread; in France, where milk for adults is scarce the addition of calcium ought to be greater. Furthermore, because of the free sale of bread, its consumption has increased and consequently the calcium deficiency should be attenuated. In one of the last meetings of the Academy of Medicine Professor Lesne reported progress in the distribution of milk to children. Henceforth, in most of the large cities, children up to 18 months of age can have 1 liter instead of 750 cc. In various cities pasteurized milk is sold in 1 liter bottles; and in the last fourteen years pasteurization has increased considerably. There is a shortage of condensed milk for children.

PUERTO RICO

(From Our Regular Correspondent)

SAN JUAN, Dec. 23, 1945.

Annual Meeting of Puerto Rico Medical Association

The forty-second annual meeting of the Puerto Rico Medical Association was held for four days in December at San Juan. Prominent members of the American Medical Association visited the island as guests of the Puerto Rico association. Physicians from Canada, the Dominican Republic and Trinidad were also honor guests. Dr. Luis Manuel Morales of San Juan was elected president of the association for 1945-1946, with the following members as the board of directors: Dr. Julio A. Santos, vice president; Dr. Rafael A. Vilar, secretary; Dr. Ezequiel Prieto, treasurer; Dr. Carlos E. Muñoz MacCormick, speaker of the house of delegates, and Dr. José N. Gándara, delegate to the House of Delegates of the American Medical Association. At the building of the association a ceremony was held to dedicate the forty-second meeting of the association to the late Dr. Pedro Gutierrez Igaravides, prominent Puerto Rican scientist, who died in 1935.

The program included a series of conferences held at the School of Tropical Medicine in San Juan, with presentation of interesting cases by Drs. Ramón M. Suárez, Arturo L. Carrión, F. Hernández Morales, Caroline K. Pratt, Rex J. Bunker and Ramón M. Suárez Jr.; Treatment of Filarial Chyluria of Renal Origin, by Dr. Julio E. Colón; Use of the Skin Test in the Diagnosis of Schistosomiasis Mansoni, by Dr. J. Oliver González; Diagnosis of Schistosomiasis Mansoni by Biopsy of the Rectal Mucosa, by Drs. F. Hernández Morales and J. Maldonado; Treatment of Schistosomiasis Mansoni with Anthiomaline, by Drs. Federico Hernandez Morales, Ramón M. Suárez, Caroline K. Pratt and J. Oliver González, and Clinicopathologic Conference, by Drs. Franklin M. Hanger and Enrique Koppish.

The meeting also included a series of interesting conferences held at the building of the association presided over by Dr. Héctor A. Bladuell of San Juan and by Dr. Héctor Read Barreras of the School of Medicine of the Dominican Republic. The meeting adjourned with a banquet for members of the Puerto Rico Medical Association and honor guests.

BOLIVIA

(From Our Regular Correspondent)

LA PAZ, Nov. 12, 1945.

Incidence of Communicable Diseases

As the result of increasing airplane travel, every outbreak of communicable disease is of great practical interest, and preventive measures, to be effective, must be based on a rapid acknowledgment of an outbreak anywhere in the world. Here in Bolivia, the crossroad of several international air lines, several epidemic diseases have been reported during the seven month period April through October, according to figures from the National Health Department.

A fairly large incidence of bubonic plague was registered during April in the town of Vallegrande, where isolated cases have been found for years. There were 65 known cases and 34 deaths attributed to plague; a vaccine prepared by the bacteriologic institute at La Paz together with the isolation of the whole district proved to be effective in controlling the disease.

An outbreak of meningococcic meningitis occurred in and around the town of Cochabamba, an important center of communication, with its peak between June and August; there were 81 cases and 14 deaths (17.3 per cent) reported to the health authorities. The disease was spreading to other places, and by October 31 a total of 151 cases with 62 deaths had been reported from different districts of the country. Measures taken by the local health authorities were quick and efficient, while the help granted by the Servicio Cooperativo was limited to the provision of some thousands of sulfadiazine tablets.

Yellow fever, a serious menace only a few years ago, is a nearly unknown disease here now, thanks to the magnificent sanitation work performed by the Rockefeller Foundation. In a seven month period only 7 cases with 2 deaths were due to yellow fever.

Smallpox is still widespread, even though progress has been made as the result of obligatory vaccination. A total of 1,345 cases was reported during seven months, and a few cases occurred even in larger towns such as La Paz and Cochabamba.

Typhoid and parathyphoid fevers reached their peaks during April and during September and October; in the whole period there were 763 known cases with 171 deaths (22.4 per cent). Typhus became more frequent during the last two months, when 79 new cases were reported with 32 deaths. Only 38 cases with 18 deaths were reported during the previous five months.

Diphtheria was reported 291 times (49 deaths) and whooping cough 3,249 times (286 deaths). Not a single case of poliomyelitis was reported, and this disease remains practically unknown here. There were 200 cases of scarlet fever with 16 deaths, and 9 cases of acute epidemic encephalitis with 5 deaths.

Malaria is the number one health problem, and 10,032 new cases with a death rate of 108 were reported; there are probably many other people becoming infected every month who never seek medical aid and therefore are not recorded in any health statistics. A very promising malaria survey was started in May by the Servicio Cooperativo Interamericano de Salud

Pública with the aid of an American specialist, but that work was unfortunately discontinued. There is another such survey under way, sponsored by the Bolivian government.

The existing obligatory reporting system for communicable diseases, established in this country by executive order, has proved efficient, but any continuous organized interchange of epidemiologic informations with other republics of this continent does not exist at present. The work, promised by the Commission of Experts on Quarantine of the United Nations Relief and Rehabilitation Administration, is expected to be of great help.

BELGIUM

(From Our Regular Correspondent)

Nov. 10, 1945.

Poliomyelitis

Since the poliomyelitis epidemic which raged in Belgium this summer, several timely reports have been published on this subject. Kleyskens and Laruelle present several interesting opinions on the subject in the *Bruxelles médical.* The virus is widely distributed throughout the population during the epidemic. Only a small number of these carriers have the disease. The contamination by direct contact is relatively infrequent. The virus is located in the intestine and is found in the feces and in polluted water in the districts where the disease prevails. The contamination without doubt takes place through the drinking water and also perhaps through the nasal passages. Human poliomyelitis and encephalomyelitis of the mouse present great clinical, micropathologic, epidemiologic and immunologic similarities. The respective viruses have the same size and have common physicochemical properties. The comparative study of the two disorders supports the belief that poliomyelitis is caused by an intestinal infection with a pathogenic virus presenting a neurotropic character only under certain conditions. The effects of serotherapy remain doubtful, but the absence of other therapeutic means justifies its provisional utilization. On the other hand, the authors point out that in the present epidemic of poliomyelitis respiratory disturbances were of exceptional frequency and gravity. They believe that early diagnosis and analysis will permit differentiation between the spinal form and the bulbar form of this respiratory paralysis. The pathogenesis of these disturbances is equivocal. It implies, therefore, different therapy depending on the nature of the disorder.

The Professional Secret

The court of Liége has pronounced judgment in the case of a physician who was accused of violating a professional secret. The obligation of secrecy is so great that it is sanctioned in the penal code in order to protect the general interest and to give a guaranty for the confidence which the patient entrusts in his physician. Consequently the duty of secrecy must always exist excepting in the cases provided by law where the physician is not a person of confidence (legal physician). Even if the case is one of more or less public knowledge, it is not immaterial for the physician to support this knowledge by issuing statements which he possesses only by the virtue of the exercise of his profession. It is not the eventual damage to the patient which forms the basis for professional secrecy but rather consideration of the general good which demands that the secret be guaranteed. Even when a fact is known by the declaration or the agreement of physicians, the treating physician to whom the patient has made his confidences cannot be relieved of his obligation of secrecy. This is more peremptory when the agreement has not yet been established. It is not necessary that the appearing person has acted with bad intention in order that it be a violation of the professional secrecy. In the case under consideration the physician had spoken of the external wounds of his patient (this fact could be considered to a certain extent as of public knowledge) and had also made reflections on the patient's general condition. After having taken account of extenuating circumstances, the physician was sentenced conditionally to a fine (*Revue de droit pénal et de criminologie,* 19th year, No. 2, p. 324).

A History of Oppression

In a report which can serve as an example of the painful aspects of oppression, the *Bruxelles médical* published the following: "In April 1943 a plan was developed to prevent the next deportation of Jews from Belgium to Germany. It was submitted to the national commander of the Army of Partisans, who, according to the opinion of a special commission, was called on to study the undertaking, which was daring, perilous and practically impossible to execute. Dr. Youra Lifschitz, doctor of medicine at the University of Brussels, undertook the plan with his group of partisans. Several other accomplices were acquired, in particular railroad workers, who agreed to halt the train on signal. A Brussels doctor, Dr. Freddy Thys, kept himself in readiness to care for those who might be wounded.

The action was realized on April 19. In spite of heavy machine gun fire, the doors of several railroad cars were opened and hundreds of Jews included in this twentieth transport succeeded in escaping. When the convoy was again en route, numerous deportees made another effort to flee between Louvain and Tirlemont. There were about 60 dead and several dozen wounded. The Gestapo retook 7 and confined them to the guard of the director of the hospital of Tirlemont.

A new action was decided on with the view of saving them, this time in accord with the national commander of the Army of Partisans." Two vehicles were sent to Brussels so that freeing of the injured could be effected. An agent provocateur had unfortunately slipped into the group and had alerted the German police. At their return, the latter had laid an ambush. A lively engagement took place and several field gendarmes were killed. The Partisans were able to save themselves, but the injured who had been liberated were retaken and later deported. Dr. Thys was condemned to death for his intervention in this "act of terrorism"; his execution was suspended but he was deported to Germany. He has returned to Brussels, fortunately in good health, and has taken up his medical activities.

Dr. Youra Lifschitz was shot after having been tortured at Breendonck. He is buried at the side of his brother, Choura, in Brussels.

Marriages

Frederick B. Spencer Jr., Salisbury, N. C., to Miss Ernestine Lewis, Tazewell, Va., in Richmond, Va., September 22.

John Robert Massie Jr., Perkinsville, Va., to Miss Emily Charlotte Taylor of Big Stone Gap, September 15.

John Gerard Masterson, Brooklyn, to Miss Jeanne Ann O'Reilly of New Rochelle, N. Y., October 20.

Hugh B. McManus Jr., Fort Bliss, Texas, to Miss Jane Pieper of St. Louis, September 15.

Julian Menden, New York, to Miss Pauline F. Connor of Chicago in Paris, France, June 18.

Philip J. Lahey Jr., to Miss Marie Gertrude Fay, both of Worcester, Mass., September 8.

Edwin Booth Vaden, Gretna, Va., to Miss Anne Funsten Rogers of Roanoke, August 25.

Norman G. Linton, Jamestown, Ohio, to Miss Jane E. Compton of Dayton in October.

Robert D. Moreton, Temple, Texas, to Miss Alma Williamson of Eastland, September 21.

Leo Michael Smith to Miss Barbara M. Potts, both of Stamford, Conn., October 16.

Hervey Winthrop Mead to Miss Alberta Allen, both of Atlanta, Ga., recently.

Deaths

Frank Watkins Weed ⊕ Brigadier General, U. S. Army, retired, San Francisco; University of Maryland School of Medicine, Baltimore, 1903; Army Medical School in 1905 and Army War College in 1929; born in Baltimore April 12, 1881; joined and served as assistant surgeon with the Artillery Corps at Fort McHenry, Md., and at various stations in the Philippine Islands from May 1904 to the latter part of 1907; returned to the United States and served as surgeon at Field Hospital number 6, Pine Camp, N. Y., and later at Fort Totten, N. Y.; early in 1912 he again was stationed in the Philippine Islands and at Tientsin, China, until January 1915, when he returned to the United States, serving at Letterman General Hospital, San Francisco, until July 1916; served at various temporary stations until August 1918, when he was assigned as general sanitary inspector, Office of the Chief Surgeon, American Expeditionary Forces, until July 28, 1919; awarded the Distinguished Service Medal for his services during World War I; on his return to the United States served as district surgeon at El Paso, Texas, until August 1920 and as post surgeon at Fort Bliss, Texas, until July 1921; served as instructor, medical reserve units, 94th division, at Boston, as harbor defense surgeon at Fort Mills, P. I., as commanding officer at Sternberg General Hospital in Manila, P. I., as post surgeon and professor, department of military hygiene, United States Military Academy at West Point, N. Y., and as surgeon, second corps area, at Governors Island, N. Y.; promoted to lieutenant colonel in 1919, colonel in 1930 and brigadier general in 1942; fellow of the American College of Surgeons; at one time assistant and later editor in chief, Medical Department of the United States Army, in the World War; served as commanding officer of the Letterman General Hospital, where he died September 29, aged 64, of cachexia and exhaustion.

John Douglas McLean ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1894; born in Norristown, Pa., Oct. 19, 1870;; member of the House of Delegates of the American Medical Association from 1917 to 1922 and in 1924; past president of the Philadelphia County Medical Society, American Hospital [illegible] Club of Philadelphia and the Sydenham Medical Coterie, during World War I attached to the Surgeon General's Office in Washington, in charge of physicians' war assignments; discharged from service as lieutenant colonel; chairman of the local selective service board number 27 from 1940 to 1945; deputy commissioner of health of the commonwealth of Pennsylvania from 1919 to 1923; member of the board of health of the city of Philadelphia; treasurer of the Philadelphia Institute for Medical Research at the Philadelphia General Hospital, where he had been chief of staff and later consultant on the tuberculosis service; since 1898 on the staff and since 1928 medical director and superintendent of the Rush Hospital for Consumption and Allied Diseases and its country branch at Malvern, Pa.; died November 10, aged 75, of bronchopneumonia secondary to carcinoma of the pharynx.

Frank Adelbert Bien ⊕ Irvington, N. J.; New York Homeopathic Medical College and Flower Hospital, New York, 1917; born in Newark, N. J., March 14, 1890; also a graduate in pharmacy; interned at the Metropolitan Hospital, Department of Public Charities, New York; first lieutenant, medical corps of the U. S. Army, World War I, serving as commander of Base Hospital number 73 at Camp Greenleaf, Ga.; fellow of the American College of Surgeons; attending surgeon at the Irvington General Hospital in Irvington; affiliated with the Presbyterian and St. Michael's hospitals in Newark and East Orange General Hospital in East Orange; during World War II served on the Civilian Defense Council and Irvington Chapter of American Red Cross; in 1935 served in the New Jersey state assembly; died October 19, aged 55, following an operation for lung abscess.

George Jesse Wright ⊕ Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1904; born in Pittsburgh June 1, 1880; professor of neurology at the University of Pittsburgh School of Medicine; specialist certified by the American Board of Psychiatry and Neurology, Inc.;. member of the American Neurological Association, American Psychiatric Association and the Association for Research in Nervous and Mental Disease; fellow of the American College of Physicians; served as president of the Pennsylvania Psychiatric Society; neurologist, St. Margaret Memorial,. Mercy, St. Francis, Elizabeth Steel Magee and Allegheny General hospitals and St. Joseph's Hospital and Dispensary; died in the Toronto General Hospital, Toronto, Ont., Canada October 1, aged 65, of nephritis.

Douglas Hamilton Mebane ⊕ Colonel, U. S. Army, retired, Washington, D. C.; University of Texas School of Medicine, Galveston, 1916; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians and the American College of Surgeons; served during World War I; entered the medical corps of the U. S. Army as a first lieutenant in 1917; promoted through the various ranks to that of colonel; retired July 31, 1943 because of age; died in the Brooke General Hospital, Fort Sam Houston, Texas, Nov. 12, 1943, aged 56, of bronchopneumonia and arteriosclerosis.

George A. Allison, Cleveland Heights, Ohio; Western Reserve University Medical Department, Cleveland, 1895; on the medical staff of the Fisher Aircraft Plant number 1 in Cleveland during World War II; formerly examiner for the Baltimore and Ohio Railroad; died in the University Hospital, Cleveland, October 5, aged 74, of cerebral embolism.

Elizabeth S. Jarrett Anderson, Ardmore, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1898; at one time on the staff of the Norristown (Pa.) State Hospital; died September 2, aged 68, of coronary thrombosis.

Peyton Fortine Anderson, New York; New York Homeopathic Medical College and Flower Hospital, New York, 1913; associate visiting physician at the Sea View and the Harlem hospitals; vice chairman of the Harlem committee, New York Tuberculosis and Health Association; chairman of the board of managers of the Harlem Branch of the Y. M. C. A.; died October 10, aged 54, of heart disease.

Lasar Noah Andres ⊕ New York; Northwestern University Medical School, Chicago, 1911; specialist certified by the American Board of Otolaryngology; served during World War I; on the staff of the Manhattan Eye, Ear, Nose and Throat Hospital; died October 15, aged 63, of coronary occlusion.

Ray Beardsley, Binghamton, N. Y.; Long Island College Hospital, Brooklyn, 1895; member of the American Medical Association; once president, secretary and treasurer of the Broome County Medical Society; served as city physician; died September 7, aged 80, of arteriosclerotic heart disease.

Adolphus Lyman Biggs, Dayton, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; member of the American Medical Association; died in the Good Samaritan Hospital September 24, aged 63, of coronary occlusion.

Pat Biscoe, Houston, Texas; University of Arkansas School of Medicine, Little Rock, 1926; member of the American Medical Association; interned at the Hotel Dieu Hospital in New Orleans; formerly resident physician at the International and Great Northern Railroad Employees' Hospital in Palestine; member of the staff as associate surgeon at St. Joseph's Infirmary; died October 16, aged 49, of coronary occlusion.

Carl Gottlieb Bretthauer ⊕ Los Angeles; State University of Iowa College of Medicine, Iowa City, 1920; died in Santa Monica September 21, aged 50, of cerebral hemorrhage.

Francis Sidney Brodrick, Boston; Detroit College of Medicine, 1895; member of the American Medical Association; served as assistant superintendent of the Boston City Hospital; died in Waltham, Mass., September 11, aged 78, of coronary thrombosis.

John Francis R. Brubaker ⊕ Hubbard, Iowa; College of Physicians and Surgeons, Baltimore, 1885; member of the school board; died October 11, aged 86, of senility.

Clarence Walter Byers, Rutherford, N. J.; Long Island College Hospital, Brooklyn, 1902; served as examining physician for the city draft board number 16; president of the board of health, police surgeon and lieutenant in the New York National Guard; past president of the Rotary Club; for many years affiliated with the Holy Name Hospital, Teaneck, where he died October 25, aged 67, of Parkinson's disease.

Philip L. Cain, Albany, Okla. (licensed in Oklahoma under the Act of 1908); member of the American Medical Association; died August 21, aged 84.

Julian H. Chandler, Swainsboro, Ga.; University of Georgia Medical Department, Augusta, 1901; member of the American Medical Association; died August 20, aged 66.

Edwin W. Coffey, Shreveport, La.; College of Physicians and Surgeons, Dallas, Texas, 1908; died September 25, aged 68.

John McGrath Collins ⊕ San Francisco; Creighton University School of Medicine, Omaha, 1935; also a graduate in pharmacy; interned at the Southern Pacific General Hospital; later served a residency at St. Francis Hospital, with which institution he was closely connected and where he died September 2, aged 36, of miliary tuberculosis.

John Leader Corish, Richmond Hill, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1887; died September 28, aged 80.

Thomas E. Courtney ⊕ Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1892; formerly on the faculty of his alma mater; at one time police surgeon and member of the city board of health; examined army recruits during World War I; on the staffs of St. Francis Hospital, City Hospital, Methodist Hospital and St. Vincent's Hospital, where he died September 27, aged 77, of coronary thrombosis.

George William Dickey, Westville, Okla.; Tennessee Medical College, Knoxville, 1904; died August 18, aged 64, of cerebral hemorrhage.

Benjamin Roscoe Dodd, Wake Forest, N. C.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1925; died in Lenoir recently, aged 46, of coronary thrombosis.

Green Berry Dorrell, Tulsa, Okla.; Bellevue Hospital Medical College, New York, 1889; died in the Hillcrest Hospital September 3, aged 83, of angina pectoris and generalized arteriosclerosis.

Edwin T. Ealy ⊕ Barnesboro, Pa.; Chicago College of Medicine and Surgery, 1906; served as a member of the Barnesboro Council; died September 27, aged 70, of coronary thrombosis.

William Banks Fuller, Oklahoma City, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1923; died in St. Anthony Hospital August 8, aged 47, of cerebral hemorrhage.

Richard Burtch Gannon, Gary, Ind.; Loyola University School of Medicine, Chicago, 1937; member of the American Medical Association; interned at the Mercy Hospital in Chicago; on the staffs of the Methodist Hospital and St. Mary's Mercy Hospital, where he died September 20, aged 41, of acute myelogenous leukemia.

Milton Adolph Gershel ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1900; for many years physician for the Hebrew Sheltering Guardian Society Orphan Asylum at Pleasantville, N. Y.; died September 7, aged 70.

Thomas Byron Gold, Shelby, N. C.; North Carolina Medical College, Charlotte, 1911; member of the American Medical Association; awarded the Congressional Medal of Honor, the Distinguished Service Cross and the Croix de Guerre for services during World War I; served as chairman of the school and draft boards; on the staff of the Shelby Hospital; died September 28, aged 57, of cerebral hemorrhage.

William L. Gravlee, Orange City, Fla.; University of Nashville Medical Department, 1882; Vanderbilt University School of Medicine, Nashville, Tenn., 1882; died September 23, aged 86, of carcinoma of the right hand.

Thomas Hardie Hawkins, Nashville, Tenn.; University of Nashville Medical Department and Vanderbilt University School of Medicine, Nashville, 1891; died in the Central State Hospital September 25, aged 74, of myocardial degeneration.

Ralph Ernest Dudley Hawley, St. Clair Shores, Mich.; University of Michigan Medical School, Ann Arbor, 1920; member of the American Medical Association; died in St. Mary's Hospital, Grand Rapids, September 21, aged 69, of atypical virus pneumonia.

Rosser Noland Hillsman Jr. ⊕ Bon Air, Va.; University of Virginia Department of Medicine, Charlottesville, 1933; died in Lynchburg August 31, aged 37, of nephritis.

Harvey Elmer Hoffman, Ludington, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1890; served for many years as health officer of Ludington and as president of the board of education; a member of the local draft board, serving as examining physician during World War I; on the staff of the Paulina Stearns Hospital; died September 5, aged 78, of carcinoma.

Emil John Hoglund, Oak Park, Ill.; Northwestern University Medical School, Chicago, 1905; served during World War I; served on the staffs of the Illinois Central and Augustana hospitals and the Home for Destitute Crippled Children in Chicago; died September 27, aged 75, of heart disease.

Bradley Hartman Hoke, Meyersdale, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1901; member of the American Medical Association; secretary of the Somerset County Medical Society; served during World War I; died in the Memorial Hospital, Cumberland, Md., August 22, aged 73, of uremia following a prostatectomy.

Park Rowe Hoyt, Laconia, N. H.; Dartmouth Medical School, Hanover, 1906; member of the American Medical Association; served during World War I; died August 31, aged 63.

Heman Humphrey ⊕ Louisville, Ky.; University of Louisville Medical Department, 1904; formerly adjunct professor of anatomy at his alma mater; physician for the Louisville Gas and Electric Company, Kentucky and Indiana Terminal Railroad and the Louisville Water Company; died September 3, aged 65, of hypertensive heart disease.

Burdette Elmerin La Due, Sterling, Ill.; Rush Medical College, Chicago, 1885; died September 9, aged 92, of arteriosclerosis and uremia.

John Francis Lambert, Newark, N. J.; Baltimore Medical College, 1903; died in St. Michael's Hospital September 12, aged 66, of cardiac failure and arteriosclerosis.

Tom Lowry ⊕ Oklahoma City; University of Oklahoma School of Medicine, Oklahoma City, 1916; dean and professor of clinical medicine at his alma mater; specialist certified by the American Board of Internal Medicine; past president of the Oklahoma County Medical Society; fellow of the American College of Physicians; served in France during World War I; on the staffs of St. Anthony and University hospitals; died December 11, aged 54, of coronary thrombosis.

William Nicholas Maloney, Cape Vincent, N. Y.; Bellevue Hospital Medical College, New York, 1898; member of the American Medical Association; past president of the Jefferson County Medical Society; for many years health officer; served during World War I; on the staffs of the Mercy Hospital and the House of the Good Samaritan in Watertown, where he died September 4, aged 73, of uremia.

John Harold Mansfeldt ⊕ San Francisco; Stanford University School of Medicine, San Francisco, 1927; began active duty as a captain in the medical corps, Army of the United States, on Sept. 20, 1942; relieved from active duty on May 23, 1943; died in Shelter Cove, October 4, aged 48.

Charles Steim McGivern, Margate City, N. J.; Medico-Chirurgical College of Philadelphia, 1912; specialist certified by the American Board of Otolaryngology; died September 14, aged 60, of cerebral hemorrhage and old coronary thrombosis.

Thomas Theodore McKinney, Denver; Meharry Medical College, Nashville, Tenn., 1895; served on the staff of the Denver General Hospital; died August 7, aged 75, of hemiplegia.

Edward V. Milholland, Baltimore; University of Maryland School of Medicine, Baltimore, 1895; medical and surgical director of the Baltimore and Ohio Railroad; died in the University Hospital September 11, aged 71, of acute genitourinary infection and chronic cardiovascular disease.

John H. Newth, Pittston, Pa.; College of Physicians and Surgeons, Baltimore, 1896; died August 3, aged 72, of carcinoma of the stomach.

Horace Poirier, Salem, Mass.; Laval University Faculty of Medicine, Quebec, Que., Canada, 1902; member of the American Medical Association; president of the Essex South District Medical Society, 1939-1940, and nominating councilor from 1940 to 1941; since 1927 on the regular medical staff of the Salem Hospital, where he had been chief of obstetrics; member of the chamber of commerce; died in Conway, N. H., August 14, aged 67, of coronary occlusion.

David Phillips Pruett, Newton, Ala.; Medical College of Alabama, Mobile, 1906; member of the American Medical Association; died September 8, aged 63, of paralysis agitans.

Milton Rice, Hilo, Hawaii; Hering Medical College, Chicago, 1895; on the staff of the Hilo Memorial Hospital; for many years an officer of the chamber of commerce; president of the board of trustees of the public library; died September 19, aged 81.

William Eugene Rink, Burlington, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1903; served overseas during World War I; member of the board of health of Burlington; on the courtesy staffs of Zurbrugg Memorial Hospital, Riverside, and the Burlington County Hospital in Mount Holly; died September 26, aged 65, of carcinoma of the bladder.

Daniel Lee Rogers, Bolton Landing, N. Y.; University of Vermont College of Medicine, Burlington, 1886; member of the American Medical Association; served as health officer and county coroner; on the staff of the Glens Falls (N. Y.) Hospital; died in the New England Baptist Hospital, Boston, September 11, aged 83, of carcinoma.

Franklin Henry Rosebrough ⊕ San Antonio, Texas; St. Louis University School of Medicine, 1904; member of the American Academy of Ophthalmology and Otolaryngology; on the staffs of the Medical and Surgical Memorial Hospital and the Nix Hospital; specialist certified by the American Board of Ophthalmology; died September 16, aged 67, of heart disease.

Samuel Fellows Round ⊕ Braddock, Pa.; University of Pittsburgh School of Medicine, 1921; interned at St. Francis Hospital, Pittsburgh;; died September 8, aged 49, of hypostatic pneumonia and acute hepatitis.

Harry William Routledge ⊕ Birmingham, Ala.; University of Louisville School of Medicine, Louisville, Ky., 1928; interned at the Hillman Hospital and the Norwood Hospital, where he died August 5, aged 40, of heart disease.

Eugene Boutelle Sanger, Bangor, Maine; Columbia University College of Physicians and Surgeons, New York, 1894; honorary member of the Maine Medical Association; member of the American Medical Association; fellow of the American College of Surgeons; on the staff of the Eastern Maine General Hospital; died September 11, aged 74, of cerebral hemorrhage.

Nicholas Schilling ⊕ New Hampton, Iowa; John A. Creighton Medical College, Omaha, 1896; past president of the Chickasaw County Medical Society; fellow of the American College of Surgeons; served on the staff of St. Joseph's Hospital, where he died September 2, aged 77,.of cystitis.

Homer Talmadge Scott, Cowpens, S. C.: Atlanta College of Physicians and Surgeons, 1912; died September 1, aged 59, of coronary disease.

Harold Waldron Seff, Delaware, Ohio; General Medical College, Chicago, 1924; city and county health commissioner; for two years with the Chicago Health Department; in 1929 and 1930 in public health work in Cleveland and later associated with the state department of health; died August 21, aged 55.

Owen Malcom Shreve ⊕ Erie, Pa.; University of Buffalo School of Medicine, 1892; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Ophthalmology; for many years on the staff of St. Vincent's Hospital; died September 7, aged 84, of myocardial failure.

Jules J. Siffer, Monroe, Mich.; Detroit College of Medicine, 1901; member of the American Medical Association; formerly city commissioner; at various times health officer; one of the founders of the Mercy Hospital, where he served as chief of staff; died in St. Vincent's Hospital, Toledo, September 13, aged 67, of pneumonia.

John Gorse Simmons ⊕ New York; College of Physicians and Surgeons, Baltimore, 1891; served on the staffs of the Bronx Eye and Ear Infirmary and the New York Post-Graduate Medical School and Hospital; died in the Fordham Hospital September 28, aged 77, of arteriosclerotic heart disease.

Harry Jerome Smejkal, Chicago; Dearborn Medical College, Chicago, 1907; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1908; died in the Hospital of St. Anthony de Padua October 3, aged 63, in a diabetic coma and of carcinoma of the submaxillary gland.

Martin Luther Steele, McComas, W. Va.; Bennett Medical College, Chicago, 1914; died suddenly, September 19, aged 70, of coronary thrombosis.

Fred James Black
Surg., U. S. P. H. S., 1905-1944

George Charles Stoll, Niagara Falls, N. Y.; University of Buffalo School of Medicine, 1929; member of the American Medical Association and the Niagara Falls Academy of Medicine; secretary-treasurer of the Niagara County Medical Society; interned at Buffalo General Hospital; served a residency at the Children's Hospital in Buffalo; on the staffs of the Mount St. Mary's and Memorial hospitals; died September 27, aged 40, of coronary thrombosis.

Wesley M. Stone, Dobson, N. C.; Davidson School of Medicine, 1906; honorary member of the Hugh Chatham Memorial Hospital in Elkin; died September 27, aged 73.

Opie William Swope ⊕ Wichita, Kan.; Maryland Medical College, Baltimore, 1905; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc., and the American College of Radiology; staff member and radiologist to the Grace and St. Elizabeth Mercy hospitals, Hutchinson; member of the staff of the Sedgwick County Hospital and the Wichita Hospital, where he died December 12, aged 64, of diabetes mellitus complicated by cerebral hemorrhage.

Walter Lorenzo Taft, St. Cloud, Minn.; Marquette University School of Medicine, Milwaukee, 1913; for a number of years a patient in the Veterans Administration Facility, where he died September 10, aged 62, of bilateral bronchopneumonia.

Isaiah Ulysses Temple, Pendleton, Ore.; University Medical College of Kansas City, Mo., 1898; for many years associated with the Indian Service; formerly city health officer; died in St. Anthony's Hospital, August 29, aged 77.

Thorvald Martinius Thorkelsen, Minneapolis; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1902; died in Robbinsdale September 20, aged 76, of coronary thrombosis.

Gilbert Dillon Waite, Portsmouth, Ohio; Rush Medical College, Chicago, 1918; member of the American Medical Association; served as chief of the Mercy Hospital; found dead September 29, aged 51.

Carl Watson, Findlay, Ohio; Cleveland Homeopathic Medical College, 1901; captain, medical corps, U. S. Army during World War I; active in Democratic politics for twenty-five years, serving as chairman of the Hancock County Executive Committee and in 1933-1934 as state chairman; formerly works progress administrator; died August 17, aged 68.

Clara B. Woodward, Evanston, Ill.: Jenner Medical College, Chicago, 1910; died in the Presbyterian Home October 19, aged 76, of carcinoma of the uterus.

Clarence Field Worthen, Boston; Harvard Medical School, Boston, 1908; member of the American Medical Association and the New England Ophthalmological Society; ophthalmic surgeon at the Massachusetts Eye and Ear Infirmary, Boston, oculist at the House of Mercy Hospital, Pittsfield, and ophthalmologist at the Newton Hospital, Newton, Mass.; died in Braintree August 22, aged 65, of hypertensive heart disease.

PUBLIC HEALTH SERVICE

Fred James Black ⊕ Surgeon, U. S. Public Health Service, Federal Security Agency, Manila, P. I.; University of Michigan Medical School, Ann Arbor, 1932; served his first year's internship in the U. S. Marine Hospital at Norfolk, Va., and a second year's internship in the U. S. Marine Hospital in Detroit; in June 1937 commissioned an assistant surgeon in the regular corps of the public health service and detailed to the U. S. Quarantine Station, Gallops Island, Boston; in November 1937 assigned to the U. S. Marine Hospital in Memphis; on July 16, 1938 promoted to passed assistant surgeon and in 1939 assigned to the U. S. Marine Hospital in Baltimore; ordered to Manila on Aug. 1, 1940; early in 1942 officially detailed to the U. S. Army Medical Department at the request of General MacArthur; on April 1, 1943, while a prisoner of the Japanese, promoted to the rank of surgeon; on duty in Manila, was one of six public health officers in the Philippines who voluntarily offered their services to General MacArthur when the islands were invaded; subsequently assigned to a Bataan field hospital and was taken prisoner when Corregidor fell to the Japanese; killed in action in the China Sea Oct. 24, 1944, aged 39, when a Japanese prisoner of war ship, with 1,775 prisoners of war aboard, was sunk by submarine action 200 miles from the Chinese coast.

Correspondence

STATISTICS ON DIABETES IN INDUCTEES

To the Editor:—Spellberg and Leff in The Journal, Sept. 22, 1945, reported the incidence of diabetes mellitus and glycosuria among 32,033 consecutive selectees aged 18 to 35 who were "processed" at the New Orleans induction station. Only 37 instances of glycosuria were found (1.15 per thousand), of which a mere 9 proved to be diabetic (0.3 per thousand). They point out that their figures are much lower than the figures from the Boston induction center, where Blotner and Hyde (The Journal, June 12, 1943, p. 432; *New England J. Med.* **229**:885 [Dec. 9] 1943) found 367 cases of glycosuria among 45,650 selectees (8 per thousand), of whom more than half, or 208, had diabetes (4.5 per thousand). They ask "Why is there so much discrepancy between our findings and those of the New England workers?" and then attempt to find the answer in age, race and geography.

Neither of the reports as published supplies a full and complete description of the inductee groups under analysis. Were all draft-eligible males in the respective geographic areas recipients of a careful physical examination including a urine analysis at their community Selective Service offices prior to reporting to the regional induction centers? If so, this prior examination would have weeded out most of those having diabetes mellitus and renal glycosuria. The incidence of these conditions among the inductees would then not be representative for the respective regions of the country but solely for selected populations of men pronounced healthy by medical check-ups performed in the preceding few weeks. Were this true, the discrepancies would reflect gravely on the skill of New England doctors!

More likely the proportion of selectees given preinduction medical examinations, and the percentage of these tested by urine analysis, must have been lower in the Boston area in 1943 than in the New Orleans area in 1945. To a speculative reader this consideration would seem of major importance in producing the differences between the two sets of data.

In passing we may be reminded that the absence of a positive sugar reaction from a random single specimen of urine is not an absolute criterion for ruling out diabetes or other forms of melituria.

Authors and editors, in papers statistical,
Should always publish all data applicable!

Irving J. Wolman, M.D., Philadelphia.

CHRONIC ONYCHOMYCOSIS

To the Editor:—In a communication to The Journal, July 7, 1945 (p. 750), it should have been less equivocally stated that an operation for permanent ablation of the nails in chronic onychomycosis is recommended only in toe infections. Moreover, less radical measures are permissible in toe cases if the infection is relatively superficial or involves only the distal portion of the nail. Characteristically, however, these cases present themselves with the nail or nails wholly involved. The case cited by Dr. Montgomery (The Journal, Oct. 27, 1945, p. 647) in which 7 of 9 infected toe nails in a single patient were cured by conservative measures cannot realistically be considered a cure either by patient or by physician, since a single infected nail will sustain activity in the concomitant epidermophytosis and will in due course reinfect the "cured" nails. It may be emphasized that patients treated by permanent nail ablation were completely cured of the skin involvement. It now seems evident that a high percentage of chronic, recurring or relapsing cases of epidermophytosis and the epidermophytidides, competently treated without permanent success, are actually in a state of continuous or intermittent exacerbation by unrecognized or undertreated toe nail infection.

With respect to freezing of skin lesions by ethyl chloride, failure to effect cure in cases which have come to my attention has been due to insufficient refrigeration. The original technic (*South. M. J.* **23**:1128 [Dec. 12] 1930) called for daily freezing of thirty to sixty seconds duration. Timing should begin after the skin has become white. The frozen zone should extend not less than 0.5 cm. beyond the known border of infection. Six to ten or more daily applications may be required. Some recent papers have advocated daily freezing only to the extent of producing the white flare. This is not adequate therapy for many chronic infections.

The singular and very rare instances in which this treatment is not effective are those of massive plantar hyperkeratosis with a centimeter or more of coriaceous epidermis interposed between the physical agent and the infecting organism. These cases require extensive and repeated chemical and surgical "peeling" before freezing may become effective.

Properly used, refrigeration gives results as favorable as one can expect of a therapeutic agent in any field; it seems definitely superior to other physical or chemical applications.

K. P. A. Taylor, M.D., Clearwater, Fla.

HERNIATION OF FASCIAL FAT AND LOW BACK PAIN

To the Editor:—In the article by Herz in The Journal, July 28, 1945, he states that "the literature and anatomy textbooks were searched for an adequate explanation of the clinical results, but none was found until the article by Copeland and Ackerman appeared." The latter authors (*Quart. J. Med.* **13**:35 [April-July] 1944) "believe that the ground covered by this study has not been systematically explored. The work has been carried out during active service in an area in which the impossibility of access to medical literature explains the lack of references to any relevant papers."

I am willing to agree that Copeland and Ackerman may not have had access to the literature, under their circumstances, but it seems that Herz, in Cleveland, should have referred to the *Quarterly Cumulative Index Medicus*, volume 22, 1937, and here under "lipoma and E. Ries (Chicago)" one is referred to the *American Journal of Obstetrics and Gynecology* **34**:490-494 (Sept.) 1937. In this article, written over eight years ago, it will be found that the gross and microscopic findings are described, that the frequency in 1,000 cases is given, that herniation of the fatty tumors through the fascia is relatively infrequent and that symptoms may not be present at all.

Philip Lewin, in his book entitled "Backache and Sciatic Neuritis," page 617, published by Lea & Febiger in 1943, also mentions these episacroiliac lipomas and the work that we have done.

Richard A. Lifvendahl, M.D., Chicago.
University of Illinois College of Medicine
and the Swedish Covenant Hospital.

BLOOD TYPING

To the Editor:—In Dr. Harville's article on cord transfusions (The Journal, Nov. 17, 1945, p. 801) is found the statement that the blood group of the father was type O, of the mother type AB and of the child type O. According to the accepted theory of Bernstein of the heredity of the blood groups, this is impossible. One of his fundamental laws is that an AB parent cannot have an O child. While this statement is not important in the otherwise excellent article, it could be of very great importance when used by a lawyer or an expert testifying in cases of disputed paternity or maternity. A few instances like this would have the same weight in court as a hundred thousand correct findings Since this was a side issue in the article, the various blood groups have not been carefully studied and checked. In Wiener's book on "Blood Groups and Transfusion," he states that any apparent exception to Bernstein's theory should be analyzed in the following way· 1. Complete examination of cells and serum, with several sets of reagents 2. Examination of specimens taken at different intervals, especially of infants whose blood groups may not be fully developed 3 Confirmation by workers with great experience. 4 Determination of the subgroup of any group A or group AB bloods in question 5. Complete study of the family Since this family is in New York State and there are mother, father and five children to study, this should be done and the results of the study published in THE JOURNAL.

JAMES D. EDGAR, M.D., San Diego, Calif

Bureau of Investigation

SOME MISCELLANEOUS MEDICAL FRAUDS

A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following are abstracts of three such fraud orders

Brother W. Thompson-El.—From Philadelphia this person sold through the mails a booklet entitled "The Key to Retaining Eye Vision," in which he referred to himself as author and as "Minister of Islam" The booklet advertised, "Age does not matter and you are not taking chances, for it is Nature's own way of preserving eyesight . . If there are cataracts on the eyes, they are relieved . . No glasses or medicine required! REMEMBER, glasses are only crutches for the eyes . . ." A customer who ordered the booklet for $3 found that it consisted of 15 printed pages containing many quotations from the Bible and the Koran, and referred to the author as a "Divine Minister" The system of eye treatment that it presented recommended exposing the eyes to the sun as much as possible, looking at its rays in the *morning* "just a little at a time" and repeating this process "fifteen minutes two times a day the first two weeks" and gradually increasing it to one hour two times a day, to the accompaniment of sun baths This, the "Brother" claimed, would bring the eyes to their natural *strength*, the required time depending on age, the condition of the eyes at starting treatment and general health Meantime the patient could gradually *discard* his glasses, if any. As for cataract, it was claimed that "constant sunbath will remove it, but you must start in a little at a time . . generally, it requires two or three years" In view of the foregoing, it is not surprising that the Post Office Department after investigating this business, notified Brother W Thompson El to show cause why a fraud order should not be issued against him He made no appearance at the hearing held in Washington Dec. 6, 1943, but was represented by counsel A Senior Medical Officer of the Food and Drug Administration, who was qualified as a government witness from the standpoint of education and experience, testified that in his years of practice he had studied and treated eye disorders, that these arise from many causes and are not amenable to any single treatment, that when due to systemic diseases they should be treated according to their causes, that in most cases of defective vision due to the formation of the eyes, glasses are required as a correction, that cataracts occur more frequently in persons whose eyes are exposed to constant light or heat than others, and are more prevalent among persons living in desert areas affording almost constant glare from the sun than those in other sections Further, he testified that, in his opinion, the treatment in question would not cure any disease or condition of the eyes, that the recommended use of sunlight was grossly unscientific and could be harmful or dangerous, and might even *result in permanent blindness due to* irritation if the treatment were regularly followed The defense attorney presented no testimony and, though *given until Jan 12, 1944, to submit* whatever brief, argument or proposed finding of fact and of law he might desire, he merely replied on *Jan 10, 1944, that no brief would be filed* Accordingly, the business was declared to be a scheme for obtaining money through the *mails* by means of false and fraudulent pretenses, representations and promises, in violation of the federal laws, and a fraud order *was issued* May 16, 1944, debarring Brother W Thompson El from further use of the mails.

Kolontone Company.—A Los Angeles chiropractor, one W H Graves, operated this concern, also doing business simply as "Kolontone" and "Koloneulture" Possibly he is the same W H. Graves who has conducted "health columns" in at least two Hollywood publications of the "health fads" type. Originally, the chiropractor sold through the *mails* a treatment composed of two products, "Mucelim" and "Acidophilus," and in 1941, when the Post Office *Department ordered* him to show cause why a fraud order should not be issued against his enterprise because of false and fraudulent *representations that he* was making for his nostrums, he signed an affidavit to discontinue the business, with the provision that a fraud order *should* be issued against it if it were ever resumed About two years later the Post Office Department obtained evidence that Graves was *still operating* the scheme but using the new names given above, and he was again ordered to show cause by a certain date why he should *not be debarred* from the mails because of fraud At the hearing of the case a chemist testified for the government that Kolontone was a *brown* watery solution containing, per 100 cc, 0 04 gram of calcium chloride, 0 24 gram of ferrous sulfate, 0 11 gram of sodium *chloride and 12* grams of glycerin, with a trace of carbonate and some protein digestives The directions were to mix 1 ounce of *Kolontone* with 1½ pints of warm water and allow it to run into the colon following an enema, once a day "until all mucus, putrid gas *forming* matter or dark fecal impactions and bad odors will have been eliminated" In addition, "to help maintain normal *chemistry of the* colon, to help control the putrefactive bacteria and to aid good bowel action in the future, several bottles of Koloneulture should be *implanted* in the colon at the conclusion of the Kolontone cleansing" A qualified bacteriologist testified for the government that microscopic analysis had shown the presence of bacillus acidophilus in Koloneulture, described as "a gold colored fluid" An expert medical witness *for the government* testified on the types of colitis, stating that it is a dangerous affliction which may vitally affect the health of the *individual and in some cases* even result in death, and that certain symptoms commonly attributed by lay persons to constipation may, on the contrary, be evidence *of* disorders much more serious Hence the victim of colitis, instead of attempting to diagnose his condition and dose himself with "patent *medicines*," should have scientific treatment adapted to his individual needs The witness further showed that Kolontone, when used as directed, had practically no other effect than an enema of warm water, and that Koloneulture, whether injected in the rectum or taken by *mouth*, would be of no benefit The bacillus acidophilus that it contains, he stated, was only between $\frac{1}{50}$ and $\frac{1}{40}$ of the amount *required* for effective therapeutic use In addition, he attested that the dietary suggestions sent out by Graves were unsuitable for indiscriminate use by any *person* suffering from colitis, since some of the foods *recommended* might contain altogether too much cellulose and roughage *for such* persons Although W H Graves had made some *reply by mail to the government's* charges, neither he nor his counsel appeared at the hearing The Post Office Department declared that the charges against Graves' concern were fully sustained by the evidence presented, and accordingly, on Oct 5, 1944, issued a fraud order against Kolontone, Koloneulture and the Kolontone Company debarring them from further use of the mails

C. Frank Langley —*From Topeka Kan, Langley promoted* a mail order scheme, selling under the *name* "Secrits" a series of formulas under the *designations A, B, B1, C, D and E These represented, respectively,* a "cheap fluid that makes Varicoses feel normal", "a cheap, powerful, harmless fluid that *permanently Removes Cataracts and strengthens eyes*", a formula "for clearing and strengthening eyes", one designated "cat, dog or monkey scratches or bites cured", another, *described* as "deep wounds and running sores healed," and the last one, an alleged cure for granulated eyelids Langley's "offer" included "all 6 above guaranteed money back for failures," and stated that he would furnish ingredients on request, at an extra charge To a person who wrote Langley regarding a cataract for which an operation had been advised, he replied with a two page *letter* written in longhand and a printed circular. The letter gave the assurance "You order the Formula (B) Use it according to Directions, get the Cataract out *of* your Own Eye, and then you'l be like other People I'v helped There is an Ingredient in (B) that shrinks the Cataract just enough to make it Brake Ez Another Brakes it and another Pushes it out of the Eyelids Continued Use of (B) Heals, and Strengthens the Sight" In reply to another inquiry, Langley wrote in longhand as follows "When you Use B be shure to get all the Ingredients Under Your Eyelids, try to hold it *3* to 5 seconds You can feel the Sulfur roll around, and it will push the Cataract of from the Eveball, it comes out looking like little balls of puss" It is not surprising that investigation of this obvious quackery by the Post Office Department resulted in a notice from that agency to Langley to show cause why *a fraud order should not be issued against him* He neither put in an appearance nor sent counsel to represent him, and when a transcript *of the hearing was sent to him and he was given* an opportunity to submit any *reply* that he desired he simply returned the transcript without any *letter or brief* Previously, however, he had sent the Post Office Department a declaration to the effect that his business had been discontinued prior *to* September 1943 and that even when it was still being conducted, he had made no false or fraudulent promises through the mails *This claim* was disproved by *means* of testimony given at the hearing of the case by witnesses for the government One of these, a chemist of the Food and Drug Administration, testified that he had made a chemical analysis of the product purchased from Langley by a person who ordered it *for the* removal of cataract, and that it was a yellowish white powder consisting of *75* 28 per cent of sugar, 24 60 per cent of sulfur, and 0 12 per cent of acid insoluble material, apparently either silica or sand *The other government* witness, a Senior Medical Officer *of* the Food and Drug Administration, testified on the nature and *treatment of cataracts He further* testified that the only cure for a cataract is the removal by *operation* of the lens of the eye or such *part thereof as may be cutting out* the light from the retina He added that he was familiar with the ingredients *of the nostrum in* question, and that, in his opinion, the application of this or any other form of medication to the external surface of the eyeball between the eyelid and the cornea would be utterly unscientific and ridiculous On May 27, 1944, the Post Office Department debarred Langley's business from the mails by issuing a fraud *order* against t

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Taxation: Exemption of Charitable Hospital from State Use Tax.—The Oklahoma Tax Commission assessed a use tax against the Baptist General Convention of Oklahoma by reason of goods purchased outside the state for use and consumption within the state by the Oklahoma Baptist Hospital, which it operated. From an order approving such assessment, the plaintiff appealed to the Supreme Court of Oklahoma.

Section 6, subdivision (i) of the Sales Tax Act (S. L. 1937, ch. 66, art. 10, p. 445) provides:

> There is hereby specifically exempted from the tax imposed by this Act the following:
>
> (i) The gross receipts or gross proceeds derived from the sale of tangible personal property, or service to charitable organizations, except where such organizations may be engaged in business for profit or savings, competing with other persons engaged in the same or similar business.

The plaintiff contended that it was exempt from the tax on the ground that "it is not engaged in business for profit or savings" in the operation of the Oklahoma Baptist Hospital. In support of this contention, evidence was introduced to the effect that during the year involved in this action the hospital was operated at a net loss of over eight thousand dollars, and that during the period from 1931 to 1940, the loss was over twenty-one thousand dollars. The evidence also showed that it was the hospital's policy not to refuse a patient because of inability to pay and that the plaintiff and other direct contributors had donated over one hundred and six thousand dollars toward the upkeep of the hospital during such nine year period. In calculating the amount of loss referred to, two items were taken into consideration, bond interest and expense and depreciation. The tax commission contended (1) that such items should not properly be considered in calculating loss and (2) that whether or not a profit was made is not material in determining whether or not a hospital is operating "for profit or savings."

The Supreme Court said that the intent of the legislature was clearly expressed when it said that charitable organizations were exempt if not engaged in business for profit or savings. Of course, continued the court, a loss for one year would not prove that an organization was not engaged in business for profit but would prove only that a loss was sustained during the one year. But if such an organization continued to operate for a period of years, and year after year sustained a loss, then the only reasonable and logical conclusion to reach would be that profit or savings was not the objective of the organization, but that some other motive prompted its existence and survival. The court then held that although bond expenses were not an allowable item in determining whether or not the hospital was operating at a profit, depreciation was. We reach this conclusion, said the court, because profit or savings implies a gain resulting from the employment of capital. In the instant case it means a pecuniary gain resulting from the operation of the hospital. Allowance for depreciation is the sum which should be set aside for the taxable year in order that, at the end of the useful life of the business equipment, the aggregate of the sums set aside will (with the salvage value) suffice to provide an amount equal to the original cost. Since profit does not refer to what is already owned but is an accretion to what is already possessed, said the court, a distinction is made between money paid on bonded indebtedness and money set aside for depreciation, to replace that which is already owned. Allowing the deduction of the item for depreciation, therefore, the record showed that the hospital operated at a loss not only during the taxable year but for nine consecutive years. The court accordingly concluded that the plaintiff was not operating the hospital for profit or savings and the judgment for the defendant was reversed.—*Baptist General Convention v. Oklahoma Tax Commission, 162 P. (2d) 1012 (Okla., 1945).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Board in Specialties were published in The Journal, Jan. 5, page 50.

BOARDS OF MEDICAL EXAMINERS

Alabama: Mar. 19-21. Sec. Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.

Alaska: Juneau, March 5. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

Arkansas:* Little Rock, June 6-7. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana.

California: *Written.* Los Angeles, March 11-14. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

Connecticut:* *Medical. Examination.* New Haven, March 12-13. *Endorsement.* New Haven, March 26. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, March 12-13. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

Delaware: Dover, April 16. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

District of Columbia:* *Reciprocity.* Washington, March 11. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington 1.

Florida:* Jacksonville, June 24-25. Sec., Dr. Harold D. Van Schaik, 2736 S.W. Seventh Ave., Miami 36.

Hawaii: Honolulu, Jan. 14-17. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu.

Idaho: Boise, Jan. 15. Dir., Bureau of Occupational Licenses, Miss Agnes Barnhart, 355 State Capitol Bldg., Boise.

Indiana: Indianapolis, April 25-27. Sec., Board of Medical Registration & Examination, Dr. W. C. Moore, 301 State House, Indianapolis 4.

Kentucky: Louisville, March 25-27. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville 2.

Maine: Portland, March 12-13. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.

Massachusetts: Boston, March 12-15. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

Michigan:* Detroit, March 26-28. Sec., Board of Registration in Medicine. Dr J. E. McIntyre, 100 W. Allegan St., Lansing 8.

Montana: Helena, April 1-3. Sec., Dr. O. G. Klein, First National Bank Bldg., Helena.

Nevada: Carson City, Feb. 4. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

New Jersey: Trenton, June 18-19. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New Mexico:* Santa Fe, April 8-9. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

New York: Jan. 28-31. Sec., Dr. Jacob L. Lochner, Education Bldg., Albany.

North Carolina: *Reciprocity.* Raleigh, Jan. 16. Sec., Dr. Ivan Proctor, Raleigh.

Ohio: *Examination.* Columbus. March 19-22. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma:* Oklahoma City, March 23. Sec., Dr. J. D. Osborn Jr., Frederick.

Oregon:* Jan. 23-26. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland 4.

Pennsylvania: Harrisburg, January. Act. Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

South Dakota:* Pierre, Jan. 15-16. Sec., Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

Texas: Austin, March 27-29. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas 2.

Vermont: Burlington, March or April 1946. Sec., Dr. F. J. Lawliss, Richford.

Washington:* Seattle, Jan. 14-16. Dir., Department of Licenses, Mr. Harry C. Huse, Olympia.

Wyoming: Cheyenne, Feb. 4. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

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Florida: Gainesville, June 4. Final date for filing application is May 20. Sec. Dr. J. F. Conn, John B. Stetson University, DeLand.

Oklahoma: Oklahoma City, Jan. 21. Sec., Dr. J. D. Osborn Jr., Frederick.

Oregon: Portland, March 2. Sec., Board of Higher Education, Mr. C. D. Byrne, University of Oregon, Eugene.

Rhode Island: Providence, Feb. 13. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

50:353-468 (Oct.) 1945

*Estrogen-Progesterone Therapy: New Approach in Treatment of Habitual Abortion: Studies Indicating Its Rationale in 24 Treated Cases. N. W. Vaux and A. E. Rakoff.—p. 353.
Renal Glomerular and Tubular Function in Relation to Hyperuricemia of Preeclampsia and Eclampsia. L. C. Chesley and Laura O. Williams.—p. 367.
Vaginal Hysterectomy in Management of Descensus Uteri. W. C. Danforth.—p. 376.
*Bilateral Polycystic Ovaries: Significance in Sterility. I. F. Stein.—p. 385.
Management of Placenta Previa: Twelve Year Study. H. C. Williamson and A. V. Greeley.—p. 398.
Should We Change Our Present Standard on Infant Viability? R. L. Haas.—p. 406.
Treatment of Primary Dysmenorrhea with Deproteinated Pancreatic Extract (Depropanex). L. L. Grossmann.—p. 411.
Diethylstilbestrol in Treatment of Functional Ovarian Disorders. G. D. Patton.—p. 417.
Mesenteric Thrombosis Complicated by Dermoid Cyst. Ruth E. Lesh.—p. 422.
Seven Year Review of Eclampsia, with Special Reference to Treatment with Veratrum Viride. G. G. Greene.—p. 427.
Continuous Caudal Analgesia in Curettage for Abortion. C. W. Newton Jr. and G. J. Andros.—p. 430.
Clinical Experience with New Synthetic Ergonovine-like Substance. J. E. Tritsch and E. Schneider.—p. 434.
Dystocia Due to Shoulders. C. G. Barnum.—p. 439.
Sickle Cell Anemia Complicated by Pregnancy. Mary Spivack.—p. 442.
Congenital Absence of Sacrum and Coccyx Complicating Pregnancy. W. Berman.—p. 447.
Strangulated Hernia Containing Pregnant Uterus at Term. C. E. Boys.—p. 450.
Gas Bacillus Infection of Uterus Treated with Penicillin. G. S. Hudson and M. P. Rucker.—p. 452.
Ovarian Pregnancy. J. B. Ballina and N. E. Chiodi.—p. 456.

Estrogen-Progesterone Therapy in Habitual Abortion.—Vaux and Rakoff used estrogen and progesterone in the treatment of habitual abortion. Twenty-four women had gone through a total of eighty previous pregnancies from which there had resulted only 7 living babies. There had been fifty-two abortions, eighteen miscarriages, two stillbirths and one premature live birth in which the infant did not survive. More than half of these patients had no difficulty in becoming pregnant; the others had diminished or poor fertility. None of these patients had pelvic abnormalities or systemic diseases which would influence abortion. Two patients had Rh incompatibilities (Rh-negative wife and Rh-positive husband). One of these delivered a normal living baby and the others aborted; in neither case did Rh antibodies develop. Examination of the endometrium obtained by biopsy or curettage was available in 11 cases before the present pregnancy. Good secretory function was noted in 7 cases, impaired secretory function in 2 and an interval endometrium in 2. Urine hormone assays were made in 15 cases prior to the onset of pregnancy. Urine gonadotropin assays made at the midcycle were normal in 13 of these. Urine estrogens were diminished in two thirds, while pregnandiol values were low or absent in over half. Hormone assays consisting of urine pregnandiol determinations, serum estrogens and serum gonadotropins were made early in pregnancy in 19 cases. In almost all of the cases one or more additional assays were made and in 3 cases monthly assays were done. On the initial assay all except 1 showed normal serum gonadotropins, but serum estrogens and pregnandiol were diminished in more than three fourths of the patients. In 13 of the 19 patients both estrogen and pregnandiol were diminished. These findings indicate a deficiency of the corpus luteum during the early weeks of gestation and an inadequacy of the placenta to take over its functions. Many of these patients had been unsuccessfully treated in previous pregnancies with progesterone, thyroid and vitamin E. During the present pregnancy all patients were treated by the injection of progesterone 10 mg. and alpha-estradiol benzoate 10,000 rat units given together two or three times weekly. This treatment was generally continued to the period of viability or later. There were 15 full term live births with 1 neonatal death; 3 premature live births with survival of 2; 2 miscarriages, and 4 abortions.

Bilateral Polycystic Ovaries.—Stein lists menstrual irregularity featuring amenorrhea, a history of sterility, the masculine type of hirsutism and, less consistently, retarded breast development and obesity as characteristic manifestations of bilateral polycystic ovaries. In 53 patients with bilateral polycystic ovaries diagnosis was made by the presence of a typical clinical syndrome and was substantiated by gynecography (pneumoperitoneum). Endocrine and other medical therapy proved valueless. Surgical treatment in the form of bilateral ovarian wedge resection and suture has proved to be a satisfactory treatment. All of the 53 patients were treated surgically. Seventeen married patients and 3 of the single patients who subsequently married (a total of 20) became pregnant after operation, resulting in 26 pregnancies and 28 babies. Four of the women were pregnant twice, one three times, and there were two sets of twins. Periodic checkup postoperatively revealed that there were no recurrences of bilateral polycystic ovaries. Three single women who had febrile and painful postoperative courses developed a unilateral ovarian cyst with adhesions. The author recommends that bilateral polycystic ovaries associated with amenorrhea, sterility and/or hirsutism be treated by bilateral ovarian wedge resection.

American Journal of Physiology, Baltimore

144:477-636 (Sept.) 1945. **Partial Index**

Reinnervation of Denervated Muscle Fibers by Adjacent Functioning Motor Units. A. V. Harreveld.—p. 477.
Factors Concerned with Induction of Tourniquet Shock. E. Mylon and M. C. Winternitz.—p. 494.
Alkalinizing Agents and Fluid Priming in Hemorrhagic Shock. R. C. Ingraham and H. C. Wiggers.—p. 505.
Experimental Analysis, by Means of Acetylcholine Hypotension, of Problem of Vagal Cardioaccelerator Fibers. H. F. Haney, A. J. Lindgren and W. B. Youmans.—p. 513.
Determination of Propagation Velocity of Arterial Pulse Wave. W. F. Hamilton, J. W. Remington and P. Dow.—p. 521.
Acquired Resistance to Water Intoxication. Mildred Liling and R. Gaunt.—p. 571.
Blood Pressure Response to Acutely Increased Pressure on Spinal Cord. R. A. Groat and T. L. Peele.—p. 578.
Average Food Consumption in Training Camps of United States Army (1941-1943). P. E. Howe and G. H. Berryman.—p. 588.
Bleeding Volume in Experimental Shock Produced by Prolonged Epinephrine Administration, Intraperitoneal Injection of Glucose and Intestinal Strangulation. H. Lawson, R. C. Porter and W. S. Rehm.—p. 595.
Response of Gastrointestinal Tract to Ingested Glucose Solutions. P. F. Fenton.—p. 609.
Lipotropic Action of Lipocaic: Study of Effects of Lipocaic, Methionine and Cystine on Dietary Fatty Livers in White Rat. D. W. Clark, Mary L. Eilert and L. R. Dragstedt.—p. 620.
Observations in Total Biliary Fistula Dogs Without Bile Therapy. C. C. Scott.—p. 626.

American Journal of Public Health, New York

35:987-1120 (Oct.) 1945. **Partial Index**

Public Health in Reconversion Period. T. Parran.—p. 987.
Recent Advances in Epidemiology of Arthropod Borne Virus Encephalitides Including Certain Exotic Types. W. McD. Hammon and W. C. Reeves.—p. 994.
*Equal Area Projections and Azimuthal Equidistant Projection in Maps of Disease. S. Jarcho.—p. 1005.
Field Study of Prevalence of Clinical Manifestations of Dietary Inadequacy. W. J. Darby and D. F. Milam.—p. 1014.
New Developments in Teacher Education, with Implications for Health Education. M. E. Troyer.—p. 1022.
Teaching Correctness of Thinking in Matters of Health. C. J. Potthoff.—p. 1036.
Legal Basis for Venereal Disease Control. J. H. Lade.—p. 1041.
Difficulties in Planning Public Health Programs in Tropical Areas. G. Arbona and P. Morales-Otero.—p. 1057.
Service Records and Their Administrative Uses: Experience from School Health Service. A. H. Kantrow, Leona Baumgartner and H. H. Goode.—p. 1063.

Maps of Diseases.—According to Jarcho, Mercator projection maps have limitations which are of importance in world maps of tropical diseases. One of the chief disadvantages is that, since the arctic and antarctic regions are exaggerated, the equatorial zones appear disproportionately small. Territories which are of equal size on a Mercator map are not necessarily equal in area. On Mercator's projection Dutch Borneo and Iceland seem to be approximately equal in size. Actually Dutch Borneo (208,000 square miles) is more than five times as large as Iceland (39,700 square miles). For world maps intended to depict the size of areas in which a disease prevails, the Mercator projection should be supplanted by projections exhibiting the "equal area" property. Equal area projections, such as Mollweide's projection, the sinusoidal projection and Goode's homolosine projection, all possess the equal area property. The azimuthal equidistant projection is a cartographic tool which shows the distance between one focal point and all other points on the earth's surface. This projection is suitable for world maps of diseases which have a relatively small and continuous realm of distribution. Examples of such diseases are cholera, tsutsugamushi fever, Russian spring-summer encephalitis, filariasis caused by Wuchereria malayi and fièvre boutonneuse. Every map drawn on the azimuthal equidistant projection is centered on a definite point, usually a city. The text is accompanied by maps drawn according to different projections to illustrate certain points stressed by the author.

American Review of Tuberculosis, New York

52:179-268 (Sept.) 1945

Blood Cell Counts: Their Statistical Interpretation. W. N. Berg. —p. 179.
*Pleural Shock and Cerebral Embolism. J. B. Andosca and J. A. Foley. —p. 221.
Family Histories in Tuberculosis. S. E. Simpson.—p. 231.
Epidemiology of Tuberculosis in Mental Hospital. D. B. Ruskin.—p. 248.
Bronchography in Pulmonary Tuberculosis: VI. Thoracoplasty, Part 2. B. A. Dormer, J. Friedlander and F. J. Wiles.—p. 258.

Pleural Shock and Cerebral Embolism.—According to Andosca and Foley, pleural puncture employed either in pneumothorax therapy, in aspiration of an empyema cavity or in exploratory thoracocentesis may result in signs and symptoms which have been diagnosed either as pleural shock or as cerebral embolism. The confusion which exists between the two diagnoses gives a false impression concerning the seriousness of the complication. Pleural shock is rare and may occur in excitable and neurotic patients, but the symptom complex of cyanosis, changes in respiration and circulation, convulsions, ocular disturbances, loss of consciousness, aphasia, paralysis and sometimes death, occurring during pleural puncture, is definitely due to cerebral embolism. The treatment consists in lowering the patient's head and giving cardiac stimulants. The prognosis in cerebral embolism depends on the amount of air entering the blood stream and the region of the brain most seriously involved. The authors have encountered 12 cases with 3 fatalities in a series of 90,120 pleural punctures at the Boston Sanatorium. One of the fatal cases was attributed to procaine hydrochloride poisoning. Procaine hydrochloride in a 1 per cent solution should be employed only for the initial pneumothorax treatment and not for the subsequent refills.

Annals of Otol., Rhin. and Laryngology, St. Louis

54:443-646 (Sept.) 1945

Management of Chronic Sinus Disease: Critical Analysis of Modern Therapeutic Measures. O. E. Van Alyea.—p. 443.
Role of Otologist in Hearing Conservation Program. W. E. Grove. —p. 458.
Chronic Deafness: Its Treatment in the Army. E. H. Truex Jr.—p. 466.
Stroboscopic Examination of Ear. H. B. Perlman.—p. 483.
Recurrent Severe Hemorrhage from Nose and Pharynx. F. B. Sargent. —p. 495.
*Aero-Otitis Media: Further Report of Purulent Otitis Media Complicating Aero-Otitis Media. R. W. Wright.—p. 499.
Acoustic Trauma. L. C. Boemer.—p. 513.
Cancellous Bone Transplants for Correction of Saddle Nose. S. Fomon, R. Luongo, A. Schattner and F. Turchik.—p. 518.
Management of Fractures of Nasal Bony Vault. J. H. Hersh.—p. 534.
*Rupture of Tympanic Membrane Due to Blast: Mechanical Hypothesis. J. J. Cantor.—p. 554.
Postbronchoscopic Reactions. L. L. Titche.—p. 568.
Thornwaldt's Syndrome. A. R. Hollender and P. B. Szanto.—p. 575.
Ossifying Fibroma of Ethmoid Cells and Frontal Sinus: Report of Case. G. H. Woodruff.—p. 582.

Aero-Otitis Media.—Wright thinks that the adenoid and lymphoid tissue in the epipharynx is the important causal agent in aero-otitis media. This tissue is easily inflamed by upper respiratory disease and accounts for the high incidence of aero-otitis media in the group between 18 and 27 years which he studied. In older age groups, in which there is an atrophy of lymphoid tissue, there may be a different picture. The pain may be moderate or so severe as to cause unconsciousness and shock. There may be nausea, vomiting and dizziness. The pain is usually deep in the ear but may be in front of the ear or over the mastoid region. The pain, even though severe for a time, is of short duration and is followed by symptoms of stuffiness and loss of hearing. The acute aero-otitis media does not demand much in the way of relief. The pain has almost invariably disappeared on arrival at the clinic. Inflation usually helps after some days have elapsed and the hearing loss and the stuffiness persist. Since the adenoid tissue seems to be the important pathologic factor in the production of aero-otitis media, the prophylactic treatment is the elimination of adenoid tissue. If a large mass of adenoid tissue is found, it is removed surgically. If the adenoid tissue is around the tubes and in the vault, which is its usual location, it is treated by irradiation in fractional doses. Treatment with x-rays or radium should give good results, such as have already been demonstrated in children in the treatment of deafness which exists on the same pathologic basis. The author has observed 39 cases of purulent otitis media occurring as a complication of aero-otitis media.

Rupture of Tympanic Membrane Due to Blast.—Cantor states that rupture of the tympanic membrane can be explained without a negative pressure being present. The damage, such as the removal of the ossicular chain, cannot be explained by a negative pressure of even 15 pounds to the square inch but can be explained by his positive pressure hypothesis. The pathway of the blast is through the eustachian tube and not through the external auditory canal. Unilateral rupture of the tympanic membrane is due to the occlusion of the eustachian tube on the unruptured side. Pathologic conditions of the nose may be responsible for the rupture of the tympanic membrane. Internal ear damage can best be explained by this hypothesis. To afford the maximum degree of protection, the lateral surface of the drum should be protected from the direct force of the blast; the person should assume a crouching position, thereby forcing the abdominal viscera against the diaphragm and expelling the maximum amount of air from the body cavities; and the mouth should be open and the nose clear so that the residual air compressed in the body cavities is not forced into the eustachian tubes and the middle ears.

Archives of Ophthalmology, Chicago

34:181-270 (Sept.) 1945

Response of Chronic Simple Glaucoma to Treatment with Cyclodiathermy Puncture. F. W. Stocker.—p. 181.
Diabetic Retinitis. H. Elwyn.—p. 187.
Revaluation of Herbert's Flap Operation for Glaucoma. L. Lehrfeld. —p. 191.
Penetration of Penicillin into the Eye: Further Studies. L. von Sallmann.—p. 195.
*Vitamin C Saturation and Senile Cataract. A. Rados.—p. 202.
Symmetrical Defects in the Lower Lids Associated with Abnormalities of Zygomatic Processes of Temporal Bones. I. H. Leopold, J. F. Mahoney and Mabel Lee Price.—p. 210.
Value of Culture Before Operation for Cataract. J. H. Dunnington and D. Locatcher-Khorazo.—p. 215.
Cavernous Degeneration, Necrosis and Other Regressive Processes in Optic Nerve with Vascular Disease of Eye. A. Loewenstein.—p. 220.
Effect of Anoxia on Hyperphoria and Its Analogy with Convergent Concomitant Squint. F. H. Adler.—p. 227.
Ophthalmodynamometry. F. L. P. Koch.—p. 234.

Vitamin C Saturation and Senile Cataract.—Rados performed the saturation test for vitamin C on 200 patients with cataract. Of these patients 135 showed an excretion level approximating that found in normal subjects living on an adequate mixed diet. The remaining 65 showed a low level; in 35 the deficiency was mild, but in 30 it was more severe. The author concludes that there is not sufficient evidence to indicate that vitamin C deficiency contributes to the formation of cataract. Transparency of the lens is not dependent on the vitamin C saturation of the body, since the large number of senile cataracts associated with a normal saturation level would contradict such an assumption. The vitamin C deficiency of some of the patients with cataract seems to be the natural result of the vitamin C deficiency of old age.

Archives of Otolaryngology, Chicago

42:157-234 (Sept.) 1945

Vocational Rehabilitation for Deaf and Hard of Hearing M. M Walter. —p 157.

*Effects of Gun Blasts on Hearing W. Machle.—p 164.

Aero-Otitis Media and Loss of Auditory Acuity in Submarine Escape Training C. W. Shilling—p 169

Deafness with Undeveloped Mastoid and Normal Tympanic Membrane F. Johnson —p. 174

Carcinoma of Larynx: Significance of Histopathologic Study of Serial Sections: Preliminary Report M F. Snitman —p. 178.

Ménière's Famous Autopsy and Its Interpretation M. Atkinson —p 186

Plasmocytoma of Temporal Bone. J. C. Gros —p 188.

Reconstructive Treatment of Gunshot Wound of Face and Neck M Lewin.—p 191

Diagnosis and Treatment of Nonsuppurative Sinusitis S E Roberts —p 198

Paranasal Sinuses S Salinger —p 212

Effects of Gun Blasts on Hearing.—An initial survey of 45 gunnery instructors was carried out by Machle to establish the characteristics of the hearing loss that had occurred in armored personnel frequently exposed to blasts of 37 and 75 mm. guns. Experimental studies under controlled conditions were carried out on 12 subjects. Repeated audiometric tests were made for four days prior to exposure. A base line was thus established The better ear was then used as the test ear. During exposure the control ear was protected by a soft rubber plug carefully fitted into the canal and a sponge rubber pad covering the external ear, over all of which a heavy cloth helmet was firmly held by a rubber band The men were exposed to gun blasts as follows: 8 to that of the 75 mm. gun, 3 to that of the 37 mm. gun and 3 to that of the 0.30 caliber machine gun They were placed at measured distances at right angles to the barrel of the gun at the level of the muzzle; with the 75 and 37 mm guns, the subjects were at a distance of 8 feet (2.4 meters); with the 0 30 caliber machine gun, at a distance of 6 feet (about 2 meters). Audiometric examinations were begun within five minutes after exposure and were repeated at intervals of two, four and twenty-four hours, with the twenty-four hour pattern being used as the base line for the next exposure record At the conclusion of the overall period of exposure, recovery was observed by means of daily audiograms. It was found that the characteristics of the hearing loss following controlled exposure to gun blast are like those of deafness from sustained high noise levels Acoustic injury and loss are common in gunnery instructors, artillerists and others, potentially serious partial deafness may be expected to occur in significant numbers of military personnel. With repeated equal exposures, acoustic damage is cumulative, apparently largely because recovery from the initial traumatic response is incomplete. Partial recovery of hearing regularly occurs in the first few days after cessation of repeated daily exposures. After months of exposure, recovery to preexposure levels of acuity is doubtful; there was evidence of partial recovery in only 2 of 10 men studied

Archives of Pathology, Chicago

40:141-208 (Sept) 1945

Pathology of Lymphocytic Choriomeningitis in Mice. R D Lillie and C Armstrong —p 141

*Experimental Endocarditis (Rheumatic like and Bacterial) in Rats. B J Clawson —p 153.

Studies on Pathogenesis of Glomerulonephritis. II. Production of Glomerulonephritis in Rats by Means of Autoantibodies to Kidney P. A. Cavelti and Else S Cavelti —p 158

Id: III Clinical and Pathologic Aspects of Experimental Glomerulonephritis Produced in Rats by Means of Autoantibodies to Kidney. P. A Cavelti and Else S. Cavelti —p 163

Morphologic Studies of Rats Deprived of Essential Amino Acids II Leucine M. E Maun, W. M Cahill and Ruth M Davis —p. 173

Morphologic Aspects and Genesis of Disorders of Adenohypophysis J. E. Kraus.—p 191

Experimental Endocarditis in Rats.—Clawson attempted to produce acute rheumatic and bacterial endocarditis in rats. Valvular lesions closely simulating acute rheumatic endocarditis anatomically could be produced in a high percentage of rats by injecting either Streptococcus viridans or Streptococcus hemolyticus into the blood stream. Some of the rheumatic-like lesions showed a degree of healing resembling the early healing observed in human rheumatic valvulitis. Lesions similar to human bacterial endocarditis were produced on the same valve or on separate valves in association with the rheumatic-like vegetations, or the bacterial vegetations occurred independently. These rheumatic-like and bacterial lesions were produced only when the bacterial organisms were in the blood stream Endocarditis failed to develop following the injection of other proteins: Dick toxin, rabbit and horse serums, egg albumin and an extract of Streptococcus viridans. Agglutinins in the blood stream apparently favor the development of valvulitis. Hypersensitiveness (allergy), immediate (anaphylactic) or delayed (bacterial), does not appear to be a factor in the genesis of the endocarditis except possibly in the bacterial form of endocarditis, in which the delayed type of hypersensitiveness may have been an influencing factor. These experiments support the theory that acute rheumatic endocarditis and bacterial endocarditis are etiologically similar but differ in degree of manifestation and that they occur as a response to a direct valvular infection with the bacterial cells.

Arizona Medicine, Phoenix

2:275-340 (Sept.) 1945

Virginal Hypertrophy of Breast K S Harris and M Rosenthal —p. 295.

Management of Cleft Lip J. M Owens —p 298.

Fracture Therapy in Community Hospital Stressing Limited Need for Open Reduction H. A Barnes —p 303.

Bulletin of Johns Hopkins Hospital, Baltimore

77:83-142 (Aug.) 1945

Peripheral Neuritis: Clinical and Physiologic Observations on 20 Cases of Unknown Etiology. M. Harvey, S W. Kuffler and J B Tredway. —p. 83.

Toxicity of Sulfanilamide on Higher Nervous Activity. W. H Cantt and E. K. Marshall —p 104

Effects of Crude and Purified Penicillin on Continuous Cultures of Normal and Malignant Cells G O Gey, M. K Gey, F. Inui and H. Vedder.—p 116

*Rat Bite Fever Due to Streptobacillus Moniliformis Treated with Penicillin: Case R A. Weber and C B Favour —p 132

Penicillin in Rat Bite Fever.—According to Weber and Favour, Streptobacillus moniliformis infections subsequent to rat bite have reacted unpredictably to arsenicals, aurothiomalate and sulfonamides. They may cause months to years of severe disability and may terminate fatally. Weber and Favour report a case of rat bite fever due to Streptobacillus moniliformis in which the organism isolated from the patient's blood was found to be inhibited by as little as 0.001 unit of penicillin per cubic centimeter in mediums which normally supported luxuriant growth. Intramuscular penicillin therapy was associated with prompt recovery. The patient has remained well one year later

Gastroenterology, Baltimore

4:453-538 (June) 1945

*Hypertrophic Gastritis Simulating Gastric Carcinoma H M Pollard and R. R. Cooper.—p 453

Value of Plasma Vitamin A Determinations in Differential Diagnosis of Jaundice. Preliminary Report. J. M. Ruffin and B Wise.—p 466

Troubles of Persons with Exaggerated Knee Jerks. W C Alvarez and A. H. Kadish.—p 473

Analytical Survey of 1,132 Patients Gastroscopically Examined L L Hardt, A. R Hufford and J I Rabens —p 477.

Polyamine Formaldehyde Resin I. Its Effect on pH of Acidified Solutions and pH and Pepsin of Gastric Juice in Vitro, II Its Toxicity in Rats: Preliminary Feeding Tests H. L Segal, H Hodge, J S Watson Jr. and W. J. Merle Scott, with assistance of Hilda A Coates —p 484.

What is pH? Explanation of Various Measures of Acidity Employed in Gastroenterology. F. Hollander —p 497

Hypertrophic Gastritis Simulating Gastric Carcinoma.—Pollard and Cooper of the University Hospital of Ann Arbor, Mich., during the past four years observed 8 patients whose gastric roentgenograms revealed a filling defect which strongly suggested a neoplasm. All were men between the ages of 22 and 65. In all but 2 cases the diagnosis of localized hypertrophic gastritis was established with reasonable certainty by gastroscopy. This diagnosis and the absence of neoplasm were confirmed in 7 of the 8 cases by laparotomy and in 6 of the cases by microscopic examination of removed tissue. Since early diagnosis and treatment are essential in the management of gastric neoplasm and operation may be contraindicated in cases of hypertrophic gastritis, it seems important that all these cases be subjected to gastroscopy before surgery is undertaken. It is wise not to depend on a trial of conservative therapy to establish the diagnosis.

Journal of Nervous and Mental Disease, New York

102:327-432 (Oct.) 1945

Hallucinations and Mental Imagery. R. Roman and C. Landis.—p. 327.
Primary Lateral Sclerosis: Distinct Clinical Entity. F. M. Stark and F. P. Moersch.—p. 332.
Some Aspects of Shock Therapy: Structure of Psychosis. G. Bychowski. —p. 338.
Modification of Electro-Shock Convulsion by Sodium Pentothal and Curare. M. Brody.—p. 357.
Spinal Cord Changes with Avitaminosis. N. R. Shulack and M. Peters. —p. 359.
Primitive Habits in Preterminal Stage of Schizophrenia, with Particular Reference to Hoarding and Self-Decorating Habits. S. Arieti.—p. 367.
Syphilitic Peripheral Seventh Nerve Paralysis: Discussion of Case. G. A. Rickles.—p. 376.
Intrathecal and Oral Vitamin Therapy in Various Neurologic Disorders. G. Heilbrunn and N. Hoffenberg.—p. 379.
Comparative Value of Electroencephalogram and Abstraction Tests in Diagnosis of Brain Damage. M. Greenblatt, S. Levin and C. Atwell. —p. 383.
*Personality Disintegration Incident to Anoxia: Observations with Nitrous Oxide Anesthesia. D. E. Fletcher.—p. 392.
Critical Appraisal of Mental Examination in State Hospitals. J. Perlson. —p. 404.
Endolumbar Pneumoencephalography, Simplified: Note on Its Advantages. J. H. Globus and J. L. Simon.—p. 412.
Minnesota Multiphasic Personality Inventory in Clinical Practice. A. L. Benton.—p. 416.
Observations on Mechanism of Electrically Induced Convulsions. F. Reitman and B. W. Richards.—p. 421.

Personality Disintegration Following Nitrous Oxide Anesthesia.—Fletcher studied 29 cases of personality disintegration following the use of nitrous oxide. Nervous and mental residuals following nitrous oxide anesthesia persisted for many years in 1 case. Another case illustrated that a small quantity of nitrous oxide given repeatedly may have a cumulative effect and lead to severe distintegration of the personality. A single administration of nitrous oxide, apparently unaccompanied by respiratory difficulties, may result in serious nervous and mental impairment with personality changes. One of the patients, who was nervously unstable, suffered from mental impairment following nitrous oxide anesthesia. It is reasonable to believe that such inherent constitutional weakness would be enhanced by nitrous oxide. The author regards anoxemia as the etiologic factor of the disturbances caused by nitrous oxide. The problem of anesthesia and anoxia may be related to problem children in school. A general anesthetic, frequently nitrous oxide, is employed for the removal of tonsils, adenoids and teeth of children of all ages. Many perplexing problems of the school room may possibly be explained on this basis.

Journal of Pharmacology & Exper. Therap., Baltimore

84:197-300 (July) 1945

Pharmacologic Studies of New Vasoconstrictor: 2-Naphthyl-(1')-Methyl-Imidazoline Hydrochloride (Privine or Naphazoline): III. Attempt to Localize Seat of Action in Terms of Adrenergic and Cholinergic Foci. F. F. Yonkman, Barbara Rennick and H. L. Schwerma.—p. 197.
Therapeutic Activity and Toxicity of Soluthiazole and Solupyridine. R. Wien, J. Harrison, W. A. Freeman and G. E. Phillips.—p. 203.
Absorption and Excretion of Soluthiazole and Solupyridine. R. Wien and J. W. F. Hampton.—p. 211.
Soluthiazole and Solupyridine in Treatment of Experimental Pyocyaneal Infections of Cornea. R. Wien and W. A. Freeman.—p. 219.
Further Studies on Detoxication of Arsphenamines by Ascorbic Acid. E. W. McChesney.—p. 222.
Dibutoline: I. Pharmacodynamic Actions of Choline Ester with Atropine-like Properties. Clare G. Peterson and D. R. Peterson.—p. 236.
*Rate of Action of Sulfadiazine and Quinine on Malarial Parasite Plasmodium Gallinaceum. S. Brackett, E. Waletzky and Margaret Baker. —p. 254.
Flavicin: II. Antibacterial Substance Produced by Aspergillus Flavus. M. T. Bush, A. Goth and H. L. Dickison.—p. 262.
Biologic Assay of Epinephrine. R. H. Noel.—p. 278.
*Quantitative Observations on Mercuhydrin and Mercupurin. W. Modell, H. Gold and D. A. Clarke.—p. 284.
Action of Marfanil and Other Anticlostridial Agents on Anaerobic Blood Agar Plates. C. O. Siebenmann and Helen Plummer.—p. 291.

Mercuhydrin and Mercupurin.—Modell and his associates compare the diuretic potency and irritant properties of mercuhydrin with mercurophylline or mercupurin. Mercuhydrin is supplied in the form of a solution of the sodium salt and each cubic centimeter contains 88 mg. of the compound representing 39 mg. of mercury in organic combination with 48 mg. of theophylline. The authors used mercuhydrin in 92 patients, and in 43 of these quantitative comparisons were made with mercupurin. The patients were selected from 1,500 ambulant patients in attendance at the cardiac clinics. All had organic heart disease with advanced congestive failure. All the common varieties of heart disease were represented, namely arteriosclerotic, hypertensive, rheumatic, syphilitic and hyperthyroid. There were approximately equal numbers of the two sexes in ages from 24 to 78 years. In the dosage range of 1 and 2 cc. the diuretic responses to mercuhydrin and mercupurin by intramuscular and intravenous administration are indistinguishable. Neither of the two agents produces renal injury, as shown by urine examinations and blood nonprotein nitrogen values after weekly injections for periods of three months. A comparison with a "blind test" method shows that mercuhydrin is less irritant than mercupurin by intramuscular injection. Hypersensitivity to either of these agents may not necessarily extend to the other.

Nebraska State Medical Journal, Lincoln

30:341-376 (Oct.) 1945

Pyelography. L. R. Sante.—p. 345.
Prevention of the Common Cold. M. C. Howard.—p. 349.
Treatment of Acute Upper Respiratory Infections. E. E. Simmons —p. 352.
Acute Upper Respiratory Infections: Variable in Bacteria as They Affect Different Epidemics. F. M. Watke.—p. 354.
Upper Respiratory Infections. L. P. Coakley.—p. 357.

30:377-416 (Nov.) 1945

Recurrent Cerebral Ischemia. T. Findley.—p. 380.
Psittacosis: Report of Fatal Case with Some Unusual Histopathologic Findings. F. H. Tanner, G. W. Covey, H. H. Everett Jr., H. H. Everett Sr. and O. A. Neely.—p. 386.
Present Day Concept of Relationship of Male and Female Sterility R. Luikart.—p. 391.
*Poliomyelitis and Acute Gastrointestinal Upsets. W. R. Kovar.—p. 394.
Rh Factor. L. O. Vose.—p. 403.

Poliomyelitis and Acute Gastrointestinal Upsets.—Kovar observed an acute clinical condition with symptoms and signs similar to those of the preparalytic stage of acute anterior poliomyelitis. The condition made its appearance during the epidemic periods of poliomyelitis in Nebraska and in the years of severe drought and economic depression. There were fever, drowsiness, headache, pain and slight rigidity of the neck, pain and some rigidity of the spine and pain in the legs. The spinal fluid was normal. The author concluded that these cases were gastrointestinal in origin and that the preparalytic symptoms of poliomyelitis were the result of avitaminosis B. He describes 3 typical cases and stresses that acute toxic gastrointestinal upsets are capable of producing symptoms similar to those of the preparalytic stage of poliomyelitis due basically to avitaminosis B and a subclinical acute beriberi. All patients with simple acute gastrointestinal conditions encountered during epidemic periods of poliomyelitis should be given large doses of vitamin B. Vitamin B is also indicated as an adjunct to treatment in all acute debilitating diseases and especially in diarrheas. It is suggested that, if tonsils are to be removed during the poliomyelitis season, high vitamin B intake be insured both before and after operation. Many so-called abortive cases of poliomyelitis may be in reality an acute gastrointestinal condition characterized by symptoms of avitaminosis B. Vitamin B plays an important part in the etiology of poliomyelitis, and the nutritional aspect of poliomyelitis should be thoroughly investigated.

Public Health Reports, Washington, D. C.

60:1201-1232 (Oct. 12) 1945

Anemia and Granulocytopenia in Rats Fed a Diet Low in Pantothenic Acid. F. S. Daft, A. Kornberg, L. L. Ashburn and W. H. Sebrell. —p. 1201.
*Tsutsugamushi Disease (Scrub Typhus): Effects of Immune Rabbit Serum in Experimentally Infected Mice. N. H. Topping.—p. 1215.

60:1233-1264 (Oct. 19) 1945

Opportunities in Psychiatric Nursing. C. H. Favreau.—p. 1233.
Psychiatric Nursing Experience by Affiliation. Mary E. Corcoran. —p. 1237.
Pathology of Experimental Tularemia in Golden Hamster (Cricetus Auratus). R. D. Lillie and C. L. Larson.—p. 1243.

Rabbit Serum in Experimental Tsutsugamushi Disease.—Topping thinks that, from a clinical standpoint, tsutsugamushi disease might lend itself more readily to therapy and even to prophylaxis with an immune serum than Rocky Mountain spotted fever. With the eschar as an early diagnostic feature, immune serum or some other therapeutic agent could be given earlier and with greater benefit. It has been demonstrated that rabbits suitably inoculated with live antigen from a strain of tsutsugamushi disease develop protective antibodies. A second series of inoculations apparently raises the protective antibody titer. These antibodies can be passively transferred to mice previously infected with lethal doses of yolk sac material from the homologous strain. Death can be prevented in the infected mice, when treated with the serum, after an interval of seventy-two to one hundred and sixty-eight hours from the time of infection. In these tests it appeared that the larger dose was more effective than the smaller.

Southern Medical Journal, Birmingham, Ala.

38:635-706 (Oct.) 1945. Partial Index

Efficiency of "Oenethyl" (2-Methyl-Amino-Heptane) as Vasopressor Substance for Spinal Anesthesia. D. A. Roman-Vega and J. Adriani.—p. 635.

*Effects of Intravenous Fluids on Bleeding and Clotting Time. V. C. Baxter.—p. 641

Premature Separation of Placenta. E. L. Dorsett.—p. 644.

Clinical Aspects of Rh Factor. J. W. Davenport Jr.—p. 648.

*Influence of White Fraction from Reticulogen on Leukocyte Equilibrium. L. J. Berry, T. D. Spies and J. K. Cline.—p. 656.

Exercise in Medicine. F. H. Ewerhardt.—p. 662.

Recent Developments in Physical Medicine. F. H. Krusen.—p. 665.

Report of Investigation of Food Poisoning Outbreaks. R. E. Teague and Sarah V. Dugan.—p. 678.

Failure of Penicillin in Treatment of Pemphigus Vulgaris. C. J. McLoughlin and W. L. Dobes.—p. 681.

Resistance of Alpha Hemolytic Streptococci to Penicillin. Irene T. Rorimer, R. B. Houlihan and G. McL. Lawson.—p. 683.

Gram Negative Intestinal Bacilli from the Southwest: Identification of 400 Cultures. M. Fulton.—p. 693.

Specific Treatment of Black Widow Spider Bite. H. T. Kirby-Smith.—p. 696.

Effects of Intravenous Fluids on Bleeding and Clotting Time.—Three patients on whom vaginal plastic operations had been done at a Galveston hospital developed delayed hemorrhage after receiving over 1,500 cc. of intravenous fluid during and after the operation. Each recovered from hemorrhage and shock promptly without transfusion, packing, blood coagulants or other measures. Studies were made by Baxter on patients who were being prepared for operation and on women after delivery. Three groups of 20 and two groups of 15 patients were studied. The bleeding and clotting time, pulse and blood pressure were taken prior to starting fluids and after each thousand cubic centimeters given. The urinary output was likewise charted. The bleeding time was taken by making a small incision in the lobe of the ear and blotting every thirty seconds with filter paper. The clotting time was taken by the Duke method, placing a drop of blood on a slide and drawing a pin through it every thirty seconds until two or three successive strings of fibrin formed. It was found that isotonic solution of sodium chloride in large quantities (5,000 cc.) caused an increase in the bleeding and clotting time. Five per cent dextrose in isotonic solution of sodium chloride, 5 per cent dextrose in distilled water and 10 per cent dextrose in distilled water decreased the bleeding and clotting time. Fifty per cent dextrose caused no change. The blood pressures varied. There was an average rise of 19 points systolic pressure with isotonic solution of sodium chloride; 13 points systolic, 2 points diastolic with 5 per cent dextrose in isotonic solution of sodium chloride; and 23 points systolic, 4 points diastolic with 10 per cent dextrose. The pulse rate varied usually not over 10 points but occasionally rose 20 points. The urinary output during infusion was as follows: isotonic solution of sodium chloride, 1,115 cc.; 5 per cent dextrose in isotonic solution of sodium chloride, 2,083 cc.; 5 per cent dextrose in distilled water, 4,438 cc.; 10 per cent dextrose in distilled water, 5,360 cc.; highest, 5,800 cc. Fifty per cent dextrose resulted in normal output.

Influence of White Fraction from Reticulogen on Leukocyte Equilibrium.—Berry and his associates observed that leukopenia was prevalent in the malnourished patients who visited their clinic and that the leukopenic patients frequently complained of ulcers in the oral mucous membranes, and some of these persons had bouts of pyoderma. Intravenous injection of a substance obtained in fractionating reticulogen in doses ranging from 20 to 60 mg. was followed by an increase in concentration of leukocytes in the peripheral blood in 12 of 14 patients. Of the 2 that showed no such response, 1 had severe food sensitivities and daily urticarial reactions, the other a profound agranulocytic leukopenia of unknown etiology. The increase in total white blood cells in the 12 malnourished persons was found to be due almost entirely to an increase in neutrophils. At or near the peak of the rise there was a left shift in the Arneth nuclear index. These observations, combined with the fact that essentially constant numbers of lymphocytes, monocytes and erythrocytes were found throughout the test period, were interpreted as reflecting a direct bone marrow delivery of the granulocytic cells.

Texas State Journal of Medicine, Fort Worth

41:281-334 (Oct.) 1945

*Reversible and Irreversible Disease of Liver with Reference to Effect of Choline. G. R. Herrmann and P. A. Rockwell.—p. 288.

*Report on 100 Cases of Rheumatic Fever in Young Adults. R. W. Kimbro.—p. 296.

Incidence of Rheumatic Valvulitis in Military Induction Examinations, with Special Reference to Cardiac Evaluation. C. F. Shaffer.—p. 300.

Experimental Basis for Pathogenesis and Treatment of Renal Hypertension. A. Grollman.—p. 304.

Growth, Thyroid and Dental Caries. C. E. Gilmore.—p. 306.

Terminal Saphenous Resection: Report on Over 300 Cases. E. Zax.—p. 307.

Endometriosis. A. O. Severance.—p. 310.

Relief of Pain in Obstetrics: Review of 1,982 Consecutive Deliveries. H. C. Slocum.—p. 312.

Rhinoplastic Correction of Common Nasal Deformities. J. H. Barrett.—p. 315.

Tuberculosis in Selected Groups. H. E. Smith.—p. 319.

Choline in Disease of Liver.—Herrmann and Rockwell report 32 cases of hepatic cirrhosis studied in the John Sealy Hospital in Galveston, Texas. A low serum albumin seemed to be the most reliable single sign of liver disease. Six clinical cases are presented in detail. Liver damage in 4 of the patients proved reversible. The enlarged livers were caused by alcoholic dietary deficiency and probably fatty metamorphosis; 2 of the patients responded to high protein diets supplemented with casein hydrolysates and brewers' yeast of high choline content. Four patients likewise responded conspicuously to the addition of choline chloride to the diet. Two cases of chronic cirrhosis of the liver with shrunken hobnailed livers and ascites failed to show response to choline chloride administration. Two patients with chronically engorged and anoxic livers of congestive heart failure, with possibly some fatty changes, showed striking reduction in the liver and general improvement following the administration of choline chloride in addition to other supportive drugs. The choline chloride may not only act as a lipotrophic substance in these cases but may also contribute to improved myocardial efficiency. Experimental studies on the effects of choline on the cholesterol content of the aorta, heart and liver of aged hens suggests that choline mobilizes cholesterol from the aorta and changes it to phospholipids. Enlarged fatty livers due to anemia and toxemia, as well as alcohol, diabetes, congestive failure or carbon tetrachloride poisoning, are likely to respond to choline, methionine, betaine, inositol or lipocaic.

Rheumatic Fever in Young Adults.—Kimbro discusses the clinical and laboratory features of 100 cases of rheumatic fever in army personnel. Twenty-nine of this group gave a previous history of rheumatic fever in childhood. Pain in a joint of the lower extremity was the initial symptom in the majority of the cases. In 84 cases joint pains were migratory, while in the remaining 16 they were confined to one joint. As a result of the extreme mildness of the arthralgia, the patient was frequently sent to the hospital with the diagnosis of flat feet or sprained ankle and only electrocardiographic abnormalities and the persistence of the elevated sedimentation rate led to the diagnosis of active rheumatic fever. As soon as the diagnosis is made, sodium salicylate should be started in doses that will give a blood salicyl level of at least 375 micrograms per cubic centimeter. The dose necessary to maintain this blood level was 40 grains (2.65 Gm.) given every six hours orally. If the oral dosage does not maintain an adequate blood salicyl level, intravenous administration of salicylate is advisable in doses of 10 Gm. per thousand cubic centimeters of isotonic solution of sodium chloride as outlined by Coburn. Salicylates were given on the average for 47.9 days; the longest period was 157 days. The average daily dosage was 132 grains (8.5 Gm.). The response was good in 71 cases. The analgesic, antipyretic and antiphlogistic action of salicylates was demonstrated. Response was moderate with 15 and poor in 9. Sixty-two of the 93 patients who have been observed for a sufficient length of time were returned to full military duty. Sixteen showed evidence of cardiac damage. Seven patients are being held for further observation because of residual heart disease. Four patients with the diagnosis of rheumatic fever proved to have rheumatoid arthritis and were discharged. Treatment with salicylates without the addition of sodium bicarbonate is indicated in rheumatic fever. Sulfonamide prophylaxis is indicated in all rheumatic fever subjects during the winter months.

Yale Journal of Biology and Medicine, New Haven

18:1-76 (Oct.) 1945

**Combined Penicillin and Chemotherapy in Acute Gonorrheal Urethritis.* R. D. Alley.—p. 7.

*Interference of Penicillin in Determination of Albumin in Urine. D. Perlstein, A. J. Liebmann, H. E. Wright and J. J. Murtaugh, with technical assistance of I. Dorrell.—p. 11.

Health Services for Hospital Personnel: V. Costs of Illness Among Employees and Operating Costs of Personnel Health Service. A. J. Geiger.—p. 15.

Eggplant (Solanum Melongena L.) in Decholesterolization. A. H. Roffo.—p. 25.

Waterhouse Friderichsen Syndrome: Report of 3 Cases in Adults with Necropsy Findings. A. A. Newman.—p. 31.

Occurrence of H. Influenzae in Throats of Adults. E. G. Stillman. —p. 37.

Biochemical and Immunologic Properties of Histoplasma Capsulatum No. 650. G. J. Scheff.—p. 41.

Three Year Survey of Fly Population in New Haven During Epidemic and Nonepidemic Years for Poliomyelitis. M. E. Power and J. L. Melnick.—p. 55.

Penicillin and Chemotherapy in Gonorrheal Urethritis.—Between Dec. 15, 1944 and July 1, 1945 Alley treated 159 cases of acute gonorrheal urethritis. The criteria of diagnosis were the presence of a purulent urethral discharge and demonstration of Neisseria gonorrheae in smears. The first 54 consecutive cases were treated with penicillin alone initially, and in refractory cases this was followed by additional penicillin, sulfathiazole or both. A combination of penicillin and sulfathiazole was employed in 105 of the cases, and the recovery rate in these was 100 per cent. The author concludes that a combination of penicillin and chemotherapy is the rational therapy for acute gonorrheal urethritis for the following reasons: 1. There appears to be a synergistic action between the two drugs when used concomitantly. 2. Both penicillin resistant and chemoresistant cases are provided for under this regimen.

Interference of Penicillin in Determination of Albumin in Urine.—Perlstein and his associates gave intravenous injections of from 300,000 to 400,000 units of penicillin to rabbits weighing from 1,500 to 2,000 Gm. Albumin tests were performed on urine collected from these animals both prior to and after injection of penicillin. The qualitative albumin tests were all negative for albumin before treatment. Severe anuria was noted during the first twenty-four hours following treatment. This condition diminished progressively during the second and third twenty-four hour periods. The output of urine returned to normal during the fourth twenty-four hour period. The samples of urine collected during the first and second twenty-four hour periods following treatment gave triple and quadruple albumin reactions. The samples collected during the fourth twenty-four hour period were negative. The original assumption that an albuminuria had been induced was not found valid. The pseudopositive albumin test appears to be due entirely to the penicillin in the urine. It was later found that on the addition of 25 per cent by volume of acetone or ethyl alcohol to the tube containing 5 cc. of urine no precipitation will occur in the presence of penicillin with the addition of the reagent. By following this precaution, the pseudoreaction can be avoided and a true albumin test can be performed. This test has a limitation in that, beyond a concentration of from 10 to 13 mg. of penicillin in the urine, the acetone or alcohol will suppress but not eliminate the interference of penicillin in the albumin test.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

29:445-500 (Sept.) 1945

Origin and Purposes of Blinking. A. Hall.—p. 445.

Word Blindness: Its Cause and Cure. R. Hall.—p. 467.

*The One Eyed Worker. J. Minton.—p. 472.

Operation for Correction of Paralytic External (Lateral) Rectus Palsy. J. P. S. Walker.—p. 477.

Penicillin in Ophthalmology, with Special Reference to Its Application in Treatment Outside the Hospital. T. G. W. Parry, G. C. Laszlo and J. L. Penistan.—p. 479.

Rupture of Choroid Associated with Cyst of Vitreous. E. Rosen.—p. 486.

The One Eyed Worker.—Minton studied 100 men and women who had lost an eye. The greatest number of eye injuries occurs in the mining industries and the metal and engineering industries. After the excision of an eye the patient takes time to adjust himself to the new visual conditions. Errors in the estimation of distances are made by all during the first few weeks. Gradually the judgment of distances becomes more accurate. The ability to estimate depth perception is also gradually regained. Young persons adjust themselves to the new visual conditions much more quickly than older persons. Simple exercises combined with playing ball have greatly accelerated the process of visual readaptation. It would be helpful if rehabilitation centers were established at eye hospitals. The eye injuries of this war will add a large number of men to the mass of one eyed workers. Many of these men will be anxious to return to their prewar employment. The men should be advised against returning to work which involves chipping, hammering or the drilling of metal. They should not be employed in underground work in the mining industry. Although these men and women are fit for most jobs, the safety of the good eye should be the first consideration.

British Medical Journal, London

2:377-414 (Sept. 22) 1945

B. L. A. Surgery. A. E. Porritt, R. K. Debenham and C. C. Ross. —p. 377.

Mikulicz Resection Operation for Gangrenous Intussusception in Infants. T. A. Hindmarsh, A. W. Stewart and B. Morrison.—p. 382.

Trichomonas Vaginalis Infection in the Male. F. L. Lydon.—p. 384.

Herpes Zoster and Chickenpox. J. Taylor.—p. 385.

*Rat Bite Fever Due to Cat Bite: Satisfactory Response to Penicillin After Failure of Arsenotherapy. G. I. M. Swyer.—p. 386.

Rat Bite Fever Due to Cat Bite.—Swyer reports a case of rat bite fever in a man aged 36 who had been bitten on the finger by a kitten. Many of the manifestations conformed to the classic picture, but there were also some aberrant features, such as the occurrence of severe myositis, repeated relapse after arsenotherapy and apparent cure by means of penicillin. Neither *rat bite nor cat bite fever* is a satisfactory term, because these two animals are not the only vectors of the disease. The term sodoku is no better, because it means rat poison. The author thinks that spirillosis is the most acceptable term.

Journal of Hygiene, London

44:149-226 (Sept.) 1945

Refection in Rats and Nature of Growth Promoted by Addition of Small Quantities of Milk to Vitamin Free Diets. F. G. Hopkins and Violet R. Leader.—p. 149.

Warm Stage Observations on Initial Development of Avian Tubercle Bacillus Cultivated in Embryo Extract. E. M. Brieger and H. B. Fell.—p. 158.

Analysis of Complement Fixation Reaction in Influenza. L. Hoyle. —p. 170.

Isolation of Salmonella Thompson from Outbreaks of Disease in Chicks. R. F. Gordon and A. Buxton.—p. 179.

Diphtheria in Hull: Review of Six Years' Bacteriologic Typing. H. M. Leete.—p. 184.

Bacteriology of Dehydrated Fish: I. Qualitative and Quantitative Studies of Drying Process. J. M. Shewan.—p. 193.

Studies in Dynamics of Disinfection: III. Reaction Between Phenol and Bacterium Coli: Effect of Temperature and Concentration with Detailed Analysis of Reaction Velocity. R. C. Jordan and S. E. Jacobs.—p. 210.

Note on Wartime Health of Women in Industry and at Home. D. C. Wilson.—p. 221.

Journal of Neurol., Neurosurg. & Psychiatry, London

8:1-48 (Jan. and April) 1945

Metabolic Factors Affecting Fibrillation in Denervated Muscle. B. Feinstein, R. E. Pattle and G. Weddell.—p. 1.
Neurosis and Sexuality. E. Slater.—p. 12.
Exploratory Study of Mental Organization in Senility. Margaret D. Eysenck.—p. 15.
Cyclic Oculomotor Palsy. I. S. McGregor.—p. 22.
Observations on Effect of Centrifugal Force in Man. W. K. Stewart. —p. 24.
Night Visual Capacity of Neurotic Soldiers. W. L. Rees.—p. 34.
Lesions of Central Nervous System in Herpes Zoster. I. R. S. Gordon and J. F. Tucker.—p. 40.

Lancet, London

2:325-356 (Sept. 15) 1945

*Prefrontal Leukotomy: Report of 100 Cases. F. Berliner, R. L. Beveridge, W. Mayer-Gross and J. N. P. Moore.—p. 325.
*Toxemia of Gas Gangrene. R. G. MacFarlane and J. D. MacLennan. —p. 328.
Mud Fever in British Army in France. F. E. Buckland and R. D. Stuart.—p. 331.
Typhoid Fever in Immunized Personnel. J. Jordan and H. E. Jones. —p. 333.
Acute Sinusitis and Otitis Media Treated with Sulfonamides: Two Illustrative Cases. S. W. G. Hargrove.—p. 335.
Chemotherapy in Experimental Tetanus. D. G. Evans, A. T. Fuller and J. Walker.—p. 336.

Prefrontal Leukotomy.—In the 100 cases in which Berliner and his associates performed prefrontal leukotomy the criterion for selection was the presence of "mental tension." This concept of mental tension may be described as a persistent emotional charge which is always of an unpleasant quality, invariably distressing and sometimes intolerable to the patient. Its presence is shown by irritability, rage, fear or other forms of emotional excitation, insomnia, restlessness, aggressiveness, destructiveness or impulsive behavor. Eighty-eight of the 100 cases presented schizophrenia, the remainder melancholia, obsessional states, epilepsy or hallucinosis. The authors used the operative technic described by Freeman and Watts. Urinary incontinence was present in many cases for periods varying from a few days to a few weeks, but it never lasted more than five weeks. Fecal incontinence was observed in a few instances during the postoperative confusional stage. Epileptiform fits occurred in 2 cases but did not continue. All signs of postoperative organic disturbance of memory, orientation or other intellectual functions were transient except in 1 patient. Recovery indicates ability to leave the hospital, live at home under normal conditions and resume some form of useful employment, not necessarily up to former standards. Twenty-nine patients can be regarded as recovered. Sixteen are much improved; that is, they do useful work in the hospital. Twenty-five are improved; many of these who were serious nursing problems before operation now take part in occupational and recreational therapy or do simple work in the hospital or on the farm. Fourteen patients have improved slightly, and this has usually meant the loss of certain troublesome features of their illness such as violent or impulsive behavior, faulty habits or destructiveness; other symptoms persist. Twelve patients may be regarded as unchanged and remain in approximately their preoperative state. Four of the 100 patients died after the operation. The impression of other workers that the best results are achieved in cases showing signs of "mental tension" is supported by this series.

Toxemia of Gas Gangrene.—MacFarlane and MacLennan suggest that there are two different substrates in the muscle, the trypsin soluble, toxin insoluble protein of the fiber and the toxin soluble, trypsin insoluble framework on which the structural integrity of the muscle depends. The latter substance, whether it is derived from the sarcolemma or from the perimysial connective tissue, is presumably formed of collagen. This supposition was supported by the finding that toxin would lyse finely teased collagen fibers derived from human tendon even in dilutions up to 1 in 64. A "collagenase" has been identified in Clostridium welchi toxin. The possibility that the general toxemia of gas gangrene is not due to alpha toxin but to the products of tissue breakdown has been studied, and evidence in favor of this theory has been obtained. Even the largest doses of antitoxin will not alleviate the toxemia of gas gangrene as long as the local destruction of muscle is proceeding. A possible relationship has been noted between the toxemia of gas gangrene and that seen in other forms of shock.

Medical Journal of Australia, Sydney

2:133-164 (Aug. 4) 1945

Scrub Typhus: Clinical Aspects. C. B. Sangster and H. B. Kay.—p. 138.
Pathologic Aspects of Scrub Typhus in New Guinea. V. McGovern. —p. 146.

2:165-196 (Aug. 11) 1945

Poverty, Housing and Health. W. O. Burt.—p. 167.
Slide Modification of Eagle Flocculation Test. N. E. Goldsworthy, F. Simpson and H. K. Ward.—p. 173.
*Staphylococcic Fasciitis: Its Relation to Penicillin Therapy. K. W. Starr.—p. 176.
Some Observations on Use of Trichorethylene in Anesthesia. A. L. B. Webb.—p. 177.
Device for Intravenous Anesthesia. R. V. Pratt.—p. 179.
*Muscle Hernia. M. Kelly.—p. 180.
Improvised Apparatus for Intramuscular Administration of Penicillin. R. C. White.—p. 181.

Staphylococcic Fasciitis and Penicillin Therapy.—Starr found that in a group of battle casualties soft tissue sinuses persisted. There were often multiple openings in the skin from which small amounts of seropus were discharged daily. This pus yielded hemolytic Staphylococcus aureus. For a time penicillin therapy diminished the discharge and appeared to control the infection, but recrudescence was constant. All patients had been subjected to repeated surgical intervention. This condition is a subacute staphylococcic infection of fascioaponeurotic planes with progressive necrosis of the tissue and is analogous to subacute staphylococcic infection of bone. Starr describes 6 cases of this type and the successful management of 5 of them. Surgical intervention is not undertaken unless the hemoglobin value, red blood cell count and hematocrit estimations are normal. Preoperative instillation of penicillin solution (2,500 Oxford units per cubic centimeter) is employed for three to seven days until the infection is controlled and the culture material is negative for staphylococci. At operation a wide exposure is necessary, and all sinuses are made to communicate with the main cavity. When the skin and fat are undermined, the fascia is exposed. The fat is often hard and edematous, and primary healing in these cases is difficult to secure. The fascia has a dead white or mottled appearance and is thickened and hard. It is in fact a "fascial sequestrum." Its eradication is essential. The resulting cavity is often very large, but its wall is not infrequently composed of muscle bellies and heals rapidly. Tubes are inserted into the cavity for postoperative local penicillin therapy. This is required for about seven days. No buried sutures are inserted except for the ligation of large vessels. The wound is closed with interrupted stainless steel wire sutures, which are left in place for two weeks.

Muscle Hernia.—Small defects in the fascial sheath usually cause aching pain and cramping. Sometimes, however, these defects occur without symptoms. The muscles of the anterior tibial group, particularly the tibialis anterior, are most frequently involved. In 4 of the 6 cases described in this paper the anterior tibial group was involved, the anterior aspect of the forearm being the site of the defect in the remaining 2. Though the hernia is often caused by an injury, more frequently it is related to the less acute but more prolonged trauma of excessive walking. These cases show two unusual responses to mild trauma: (1) failure of a small defect in the deep fascia to heal and (2) muscular dysfunction with pain. It is well known that even major defects in the deep fascia almost invariably heal, as is evidenced by the reforming of the fascia lata after the removal of large strips. There seems to be no doubt that the failure of the fascia to unite causes disorder of muscular function with consequent aching pain. McMaster treated 8 cases by surgical repair but was not enthusiastic about the results. Attempts have been made to close the fascial defect by injections of sodium morrhuate, with improvement in symptoms for a few months only. Kelly made no attempt to treat his patients.

Practitioner, London

155:129-192 (Sept.) 1945

Standards of Food Requirements. J. R. Marrack.—p. 129.
Nutrition from Standpoint of Public Health. E. H. M. Milligan.—p. 136.
Diet and the School Child. R. E. Smith.—p. 144.
Cooking and the Nutritional Value of Food. G. N. Jenkins.—p. 149.
Hospital Diet. Ruth Pybus.—p. 156.
Sleep in Health and in Illness. S. W. Smith.—p. 161.
Impending Dissolution. W. N. Leak.—p. 170.
Eye Diseases in East. J. Minton.—p. 176.

Proceedings of Royal Society of Medicine, London

38:545-612 (Aug.) 1945

*Anesthesia in Operations for Closure of Patent Ductus Arteriosus. J. Gillies.—p. 545.
Preparation of Diabetic Patient for Operation. G. Graham.—p. 547.
Radiology of Small Intestine. J. Wilkie.—p. 551.
Physical Basis of Radiant Heat Therapy. D. S. Evans and K. Mendelssohn.—p. 578.
Orbital Tumors. H. Jackson.—p. 587.
Anatomy of Thoracic Outlet in Relation to "Irritation" and Compression of Nerve Trunks. G. Weddell.—p. 601.

Anesthesia in Operations for Patent Ductus Arteriosus.—In his experience, which has been limited to twenty-one ligations, Gillies says that anesthesia for the uninfected and younger subjects presented little difficulty. It is familiar knowledge that children tolerate thoracotomy better than older subjects. Patients with infection were in a critical condition during operation. Adequate oxygenation may be difficult because of patchy areas of consolidation in the lungs as a result of emboli from the infected vessels. Although the management of the anesthesia for this operation is not essentially difficult, it must be of such quality that the surgeon receives maximum assistance in his delicate manipulations. The quietest respiration consistent with good oxygenation must be maintained. A high oxygen content helps oxygenation by continuous diffusion into the alveoli when respiratory excursion is reduced. Quiet breathing will also minimize mediastinal movement. Cyclopropane has been employed almost entirely in this series, with satisfactory results. The use of a tracheal tube is not essential but is a comforting safeguard against mechanical obstruction of the airway. Complete deflation, especially under prolonged pack or retractor pressure, sometimes causes difficulty in reexpanding the lung. Jones interrupts the operation in order that the anesthetist may reinflate the lung for a few seconds every ten minutes. This is a definite aid in facilitating the final reexpansion at the end of the operation and of mitigating postoperative pulmonary complications.

Presse Médicale, Paris

53:489-500 (Sept. 15) 1945. **Partial Index**

*Total Carbon Dioxide Content of Plasma in Shock and Hemorrhage. L. Binet and M. V. Strumza.—p. 489.
Terminoterminal Anastomosis After Subtotal Gastrectomy. J. Huguier and C. L. Chatelin.—p. 490.
Daily Vitamin C Requirement of Patient with Tuberculosis of Serous Membranes. Comparison of Ingestion with Blood Rate. H. Gounelle and A. Vallette.—p. 491.
Penicillin Therapy of Subacute Bacterial Endocarditis. L. de Gennes and L. Cournot.—p. 492.

Carbon Dioxide Content of Plasma.—Binet and Strumza studied the total carbon dioxide content of the plasma in dogs which were anesthesized by chloral and in which shock was produced by repeated injections of histamine. First a rapid and later a slower but progressive decrease in blood alkali was demonstrated. A fall of alkali to 50 per cent of its initial value was observed within one hour. As a measure of blood alkali, analysis for total carbon dioxide was made and a decrease of the carbon dioxide to 14.7 and to 12.7 per cent by volume was demonstrated within seven to seven and a half hours after shock was induced. In additional experiments, moderate and extensive hemorrhages were produced in anesthesized dogs. Isotonic solution of sodium chloride was administered to those dogs which had lost three fifths of their total blood. In the dogs subjected to hemorrhage, the carbon dioxide varied from 32 to 13 per cent by volume and the lowest value was observed within seven hours after the hemorrhage. In spite of the administration of isotonic solution of sodium chloride, the decrease of the carbon dioxide content and of the alkali in the blood continued in the dogs subjected to profuse hemorrhage. Good initial results were obtained by adding 4 Gm. of sodium bicarbonate per thousand cubic centimeters to the isotonic solution of sodium chloride. Repeated bicarbonate injections were required to prevent a later fall of the carbon dioxide content and to maintain a normal blood alkali as long as the posthemorrhagic anemia was not attenuated.

Monatschrift f. Geburtshilfe u. Gynäkologie, Basel

119:281-332 (June) 1945

Studies on Serum Iron: I. Serum Iron in Healthy Women During Latter Part of Pregnancy, Parturition and Puerperium. S. Dahl. —p. 281.
*Problem of Malignancy of Granulosa Cell Tumors. E. Glatthaar.—p. 304.
New Method for Revival of Asphyctic Newborn Infants. N. Erez. —p. 313

Malignancy of Granulosa Cell Tumors.—Glatthaar describes a case of granulosa cell tumor of the ovary which was clinically malignant but microscopically had the structure of a benign granulosa cell tumor. Laparotomy disclosed an enlarged uterus and bilateral, nodulated, apparently malignant tumors of the ovaries, which already had caused extensive metastases. The tumors and metastases were extirpated and the uterus was amputated. Microscopic examination revealed that the bilateral ovarian tumors were granulosa cell tumors. Highly differentiated tissues were interspersed with some of a more diffuse structure. The metastases showed essentially the same structure. The clinical aspects of this case were definitely malignant but the microscopic structure was that of a benign granulosa cell tumor. Since the microscopic appearances are not reliable in cases of granulosa cell tumors, the therapy must be *governed by the clinical features.*

Acta Dermato-Venereologica, Stockholm

25:289-387 (Feb.) 1945

Effect of Caloric Stimulation on Reticuloendothelial Cells of Skin. P. Gróf.—p. 289.
Case of Rothmund's Disease. J. Knap.—p. 302.
Pediculosis Capitis Treated with Acetum Staphidis Agriae and Tinctura Staphidis Agriae. J. D. Magnussen and H. Debes Joensen.—p. 322.
Fulminant Acute Gangrene of External Genital Organs. N. Melczer. —p. 338.
Clinical Features and Etiology of Gangrenous Degeneration of Various Skin Inflammations. N. Melczer.—p. 350.
*Deteriorating Therapeutic Effect of Sulfathiazole in Gonorrhea. G. Seeberg.—p. 361.
*Local Treatment of Gonorrhea with Sulfathiazole: Clinical Investigation. G. Seeberg.—p. 380.

Sulfathiazole Resistance in Gonorrhea.—Seeberg studied uniform material from outpatient wards comprising 3,428 patients, 2,930 of whom were men and 498 women. They all had an uncomplicated form of gonorrhea for which they had received one period of intensive sulfathiazole treatment. The recurrence frequency among men rose from 15 per cent at the beginning of 1941 to 70 to 80 per cent at the end of 1943 and remained at the latter figure during the first months of 1944. Among the women the incidence of recurrence rose from 30 per cent at the beginning of 1943 to 70 per cent at the close of the same year. The recurrence frequency was about the same for those infected in Stockholm and for patients infected outside the city. Recurrences were diagnosed by culture and by microscopic examination of direct specimens as late as the fourth week in men and the eighth week in women. This observation shows the necessity for an effective control period following the treatment. The explanation for the deteriorating results reflected in the rising recurrence frequency seems to lie in the fact that an increasing number of strains of gonococci have become chemoresistant.

Local Sulfathiazole Therapy of Gonorrhea.—Seeberg reports the results of treatment of 86 gonorrhea patients with sulfathiazole by local application. Sixty-four of the patients were men and 22 were women. Ten cc. of 15 per cent microcrystalline sulfathiazole suspended in water was injected into the urethra of the men. The patient retained this suspension for ten minutes. The treatment was repeated six times daily for seven days. One sulfathiazole suppository was introduced into the urethra and one into the rectum of the women six times daily, and one suppository was inserted in the cervical canal twice a day for seven days. With local treatment only, gonorrhea was cured in 8 of 30 men, while there were no cures among the 9 women treated by the local application. With combined local and oral treatment, gonorrhea was cured in 12 of 34 men and 5 of 13 women. In the majority of the cases local application of sulfathiazole had no therapeutic effect. The reason for this is believed to be an increased chemoresistance of the gonococci.

Book Notices

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1944, with the Comments That Have Appeared in The Journal. Cloth. Price, $1. Pp. 238, with 50 illustrations. Chicago: American Medical Association, 1945.

This volume was originally designed as a complement to another publication of the Council, New and Nonofficial Remedies, the latter designed to list and describe preparations found acceptable by the Council, the former to explain why the Council found certain preparations unacceptable. The annual reprint was also designed to contain reports of other deliberations of the Council as well as comments that appeared in THE JOURNAL. The present volume is quite unusual in that it contains not one report concerning a product found unacceptable. However, there are five reports on the omission of products from New and Nonofficial Remedies, mainly for the reason that they have outlived their usefulness, and in most cases the manufacturers have expressed their lack of desire for continued inclusion of their brands. These reports are Erysipelas Streptococcus Antitoxin and Antierysipelas Serum Omitted from New and Nonofficial Remedies; Ichthammol Preparations, Isarol, Ichthynat, Ichthyol, Omitted from New and Nonofficial Remedies, and Soluble Ichthammol Not Within the Scope of New and Nonofficial Remedies; Iodine Compounds Iodalbin and Stearodine, Iodo-Casein, Iothion and Iodostarine Omitted from New and Nonofficial Remedies; Mercuric Oxycyanide, Mercuric Salicylate and Mercuric Succinimide Omitted from New and Nonofficial Remedies, and Status of Antimeningococcic Serum and Meningococcus Antitoxin.

This volume is a veritable mine of information on subjects of general interest to the physician, pharmacist and the pharmaceutical manufacturer. The reports concern deliberations of the Council on general subjects ranging from the use of the electron microscope to the appraisal of new drugs. The report on Pathogenic Bacteria, Rickettsias and Viruses as Shown by the Electron Microscope is noteworthy as being pioneer work in this field. The report on the Current Status of Prophylaxis by Hemophilus Pertussis Vaccine was prefatory to the acceptance by the Council on various brands of pertussis vaccines and pertussis vaccine combinations. The valuable and highly informative article on Local Treatment of Thermal Cutaneous Burns reports the latest and best work in this field.

Voluntary Health Agencies: An Interpretive Study. By Selskar M. Gunn and Philip S. Platt. With a foreword by Louis I. Dublin. Under the auspices of the National Health Council. Cloth. Price, $3. Pp. 364. New York: Ronald Press Company, 1945.

This book is a study under the auspices of the National Health Council made possible by financial support from the Rockefeller Foundation.

For many years there has been a growing feeling in public health circles that too many voluntary health organizations exist and that their programs, financing and other relationships are spotty, unequal, overlapping and not well proportioned to needs in the several fields. The organization of the National Health Council itself was an effort to correct these conditions. The National Health Council was apparently premature, since the desired objectives were not obtained. This study was initiated to learn as much as possible about existing types of voluntary health agencies at the federal, state and local level and making recommendations as to how these might be strengthened, consolidated or coordinated. The directors of the study, under whose authorship the book is published, are both experienced in various phases of public health work in the United States and elsewhere. They were well fitted by experience and training to undertake such a study. With the aid of a field worker, they visited numerous communities and talked with the executives or other officers of hundreds of typical health agencies. It was impossible to talk to a representative of each of the twenty-two thousand known voluntary health agencies in the United States.

The book is a description of the problem from the standpoint of what constitutes a voluntary health agency, what its social values and functions are and where such voluntary agencies lack. Among reasons why they lack, the human factor is of tremendous importance. Recommendations are presented as to how the effectiveness of health agencies might be increased. Considerable attention is devoted to statewide and nationwide organizations. A chapter is devoted to the professional organizations, namely the American Public Health Association, the National Organization for Public Health Nursing, the American Medical Association, the American Dental Association and the National Safety Council. The description of the American Medical Association, its organization, purposes and activities is one of the few fair factual and objective presentations relating to this organization which can be found.

The remedies proposed for confusion, duplication, overlapping and gaps in the voluntary health field include close coordination beginning at the federal level with an ultimate goal of a unified health program and wide coordination of the national health agencies. An overall fund raising and coordinate body similar to the National War Fund is suggested.

Any one who has experienced the multiplicity of health agencies at federal, state and local levels and the almost innumerable "health projects" essayed by agencies whose primary objective is something other than a health program cannot help but be interested in this study. The authors have been courageous in their study and in their recommendations. If they receive the attention which they ought to receive, and anything approaching the action recommended, the entire public health movement should derive great benefits.

Nutrition and Relief Work: A Handbook for the Guidance of Relief Workers. Published by the Council of British Societies for Relief Abroad. Cloth. Price, 70 cents. Pp. 111, with illustrations. New York, London & Toronto: Oxford University Press, 1945.

This small book represents an effort on the part of certain British war relief agencies with the cooperation of British nutritionists to provide a manual on nutrition of use in relief feeding. It begins with a brief discussion of the energy requirements of various occupational activities. The functions of the vitamins essential for human nutrition and the quantities needed daily are given as well as the symptoms of vitamin deficiencies. An outline of methods for determining the nutritional adequacy of a population includes the gathering of data on food consumption and examination of the representative groups with particular reference to certain objective findings which are listed. Further practical information relating to problems met in caring for the European peoples, such as differing dietary habits, storage and handling of foodstuffs, makeshift cooking arrangements and descriptions of the different currencies and systems of measurement, is to be found in the manual. Diagrams of cooking units, large scale recipes and tables of food values add to the usefulness of the book. The concise form of its nutritional discussion and the assembled facts regarding foods and their handling make the work of more than passing interest or use for the limited purpose for which it was prepared.

A Text-Book of Neuro-Anatomy. By Albert Kuntz, Ph.D., M.D., Professor of Micro-Anatomy in St. Louis University School of Medicine, St. Louis. Fourth edition. Cloth. Price, $6.50. Pp. 478, with 328 illustrations. Philadelphia: Lea & Febiger, 1945.

This excellent book on neuroanatomy contains twenty-six chapters. It starts with evolution and comparative anatomy of the nervous system and concludes with the functions of the cerebral cortex. This edition is thoroughly revised and parts of it are rewritten. New data have been inserted without increasing the size of the text. Some new and improved illustrations with more complete designations have been added. This is a good book for the medical student because it is written simply and is based on the premise of structure and function. This is the ideal way of presenting a subject like neuroanatomy. The book is highly recommended.

Poor Man's Doctor. By Lewis R. Tryon, M.D. Cloth. Price, $2.75. Pp. 233. New York: Prentice-Hall, Inc., 1945.

Many a horse and buggy doctor has been telling the story of his life with much public interest. The author of this biography was born in Pennsylvania in 1872. His career brought him into the work of the Red Cross in Estonia. His travels took him pretty well around the world, yet he was always a doctor for the people. The story is told simply and directly with little artistic elaboration but with a good deal of humor and humanity.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

BREAST CANCER AND PREGNANCY

To the Editor:—Should a three months pregnancy be terminated in a patient with Paget's disease of the nipple? If so, should the breast excision be done first or the interruption of pregnancy? Captain, M. C., A. U. S.

Answer.—It seems logical to remove the breast promptly and to follow the surgery by irradiation if this course is decided on. The fate of the pregnancy would depend on several factors, such as the extent of the breast lesion, the desirability of a baby and the duration of the pregnancy. There is no unanimity of opinion concerning the role of the endocrines in breast cancer. There is some evidence that continued ovarian function favors neoplastic growth and decreases the likelihood of a cure. This has not been proved. If it is true, pregnancy, which is associated with an increase in the estrogen level of the blood, would be inimical to a favorable outcome.

If a woman who has had children is seen early in her pregnancy with a carcinoma of the breast, one could do a hysterectomy and bilateral salpingo-oophorectomy after the breast has been cared for, thereby removing ovarian function. If the same patient is seen in midpregnancy, she can be carried to viability of the child and the pregnancy then terminated by a porro cesarean section and the removal of the adnexa. In the event that the lesion of the breast is extensive when the patient is first seen, interference with the pregnancy would be of doubtful value.

PRESCRIBING SUGAR IN THE DIET

To the Editor:—It has recently been brought to my attention that some doctors are prescribing sugar. Under what conditions should one prescribe sugar, for what diseases? J. O. Chiapella, M.D., Chico, Calif.

Answer.—The conditions for which prescription of sugar is indicated are limited to those in which hypoglycemia exists. This may occur spontaneously in the presence of adenomas or other tumors of the pancreas or with pituitary, hepatic or adrenal disorders as well as with lesions of the central nervous system and emotional disturbances. An overdose of insulin in a diabetic patient would produce hypoglycemia.

The oral use of sugar in the treatment of low blood sugar should be limited to emergencies. It is no longer considered desirable to administer sugar prophylactically at intervals throughout the day, because ingestion of carbohydrate stimulates the islet cells to produce more insulin. Restriction of carbohydrate with a high fat or high protein diet has been found successful.

While quantities of lactose and other sugars may be recommended in the diets of patients with febrile conditions such as typhoid, to supply caloric value it is necessary to provide adequate amounts of the B complex vitamins to take care of the sugar. It would not be appropriate to advocate building up the caloric content of the diet with sugar to give a healthy person more energy or to increase the body weight.

UNDULANT FEVER IN LACTATING MOTHERS

To the Editor:—It has been my policy to recommend to lactating mothers with undulant fever that they should not nurse their newborn babies. Doubt has been expressed as to whether or not this is sound advice. Cecil A. Z. Sharp, M.D., Joliet, Ill.

Answer.—The available information relating to this query is small in amount and possibly inadequate as a basis for routine advice to all lactating mothers. In the light of present knowledge it seems advisable to prohibit nursing if the mothers have symptoms and signs of brucellosis throughout pregnancy or during the early postpartum period, and to permit infants to nurse if by appropriate therapy the mothers have been maintained free from symptoms not only during pregnancy but also during the early puerperium. Valuable information is found in the paper "Undulant Fever in Children," by Hagebusch and Frei (*Am. J. Clin. Path.* **11**:497 [June] 1941).

INTESTINAL PUTREFACTION

To the Editor:—Will you please advise me how to eliminate putrefaction in the bowel and stool. Give references if possible.

E. R. Hargett, M.D., Springfield, Ohio.

Answer.—Assuming that there is no obvious functional or organic derangement of the secretory and motor functions of the gastrointestinal tract and no protozoal infection or metabolic or other systemic disorder present, treatment along one of several lines may be undertaken. A tablespoon of lactodextrin (a proprietary mixture of lactose, dextrin and lemon juice) three times daily and a glass of acidophilus buttermilk twice daily has been recommended. The former is dissolved in a large glass of hot water and preferably taken an hour before each meal. In order to keep the flora changed, adequate daily evacuation of the bowels is deemed essential. This may be accomplished by the use of agar, bran, one of the plantago products or enemas in addition to the ingestion of fresh and stewed fruits, greens and such vegetables as lettuce, celery, cabbage, beets and parsnips. If tolerated, bulky or laxative foods may be used in liberal quantities, not once a day only but at every meal. According to Kellogg, the daily ingestion of proteins should not exceed minimal requirements, and meats of all sorts, including fowl and fish, should be excluded. The well cooked yolk of fresh eggs is permitted. On the basis of investigations carried out by Van der Reis purporting to show the deleterious effect of bacteria migrating from the colon to the upper reaches of the small intestine and colonization there, Rosell advocates transduodenal irrigations by living lactic acid bacterial cultures and the ingestion of generous quantities of yogurt and kefir. Other preparations that may be used singly or in addition to those already mentioned are kaolin, alumina, di-hydranol and sodium ricinoleate (soricin).

The theory that intestinal toxemia is the cause of disease is a controversial matter, and its proponents are at present on the defensive. This is strikingly shown by the fact that there has been a substantial decrease in the contributions to the subject in the past fifteen years. In the opinion of Power and Sherwin and numerous contemporaries, the human organism is provided with a chemical defense mechanism, nonspecific in character, which is more than adequate for the detoxication of the small amount of putrefactive products normally produced in the human intestine by the action of putrefactive bacteria or unabsorbed protein material. In fact, the usual bacterial flora may even be of benefit by preventing the implantation of pathogenic organisms.

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Rosell, Jose M.: *Canad. M. A. J.* **21**:161 (Aug.) 1929.
Feirer, W. A., and Leonard, Veader: *Bull. Johns Hopkins Hosp.* **48**: 25 (Jan.) 1931.
Power, F. W., and Sherwin, C. P.: The Detoxication of Putrefactive Products by the Human Body, *Arch. Int. Med.* **39**:60 (Jan.) 1927.

URTICARIA FROM PENICILLIN

To the Editor:—A patient aged 35 years has had chronic osteomyelitis for the past twenty years. The process has involved the fourth lumbar vertebra, the left humerus and the sternum. There have been intermittent exacerbations. The most recent one involved the spine. It started as it had on numerous other occasions with malaise, low grade fever and rather severe low back pain. On the third day treatment with penicillin was started. The dosage was 30,000 units every three hours day and night. All symptoms subsided by the end of the third day. The administration of penicillin was continued, however, for a total of nine days, at which time the patient developed the most extensive case of hives that I have ever seen. Following recovery from the hives, the patient has been quite well. If this osteomyelitis shows evidence of flaring up again, is it safe to administer penicillin again? What is the likelihood of a similar reaction to this drug recurring? Should the dosage be altered in any way?

M.D., Pennsylvania.

Answer.—The reaction which is described occurs in about 2 per cent of patients who receive penicillin for a period of ten to fourteen days. If the patient needs penicillin in the future, it might be well to use an entirely different preparation; that is, a preparation of another manufacturer. In some of the cases that have been reported, a similar reaction has occurred when the drug is given a second time. In others it has not. It is suggested that, if penicillin is given in the future, the patient should be watched carefully after each dose, and, if urticaria should appear, the drug should be discontinued.

TOXICITY OF AMPHETAMINE

To the Editor.—Is there not a pharmacologic similarity between some of the actions of amphetamine and those of cocaine? Both may cause cerebral stimulation or excitement, diaphoresis, tachycardia, rise of systolic pressure and wakefulness This strong resemblance has never received much comment in the literature. Has such comparison ever been made? Cocaine used steadily in time usually results in complete or nearly complete impotence. Has such an end result ever been ascribed to amphetamine? Several years ago The Journal described the death of a student after taking about 15 mg. of amphetamine Have any other fatalities been reported?

M.D , Illinois

Answer—The signs and symptoms caused by cocaine are similar to those due to stimulation of the sympathetic nervous system; the analogy is not perfect, however. Sollmann in his "Manual of Pharmacology" points out that the symptoms of cocaine poisoning resemble those of ephedrine. Ephedrine is closely related to amphetamine, except that the latter has much less vasopressor effect Waud (The Journal, Jan. 15, 1938, p. 206) reported that, in the absence of collapse, the toxic effects of large doses of amphetamine resemble excessive stimulation of the sympathetic nervous system.

Ephedrine is known to prevent erection in some patients. The parasympathetic vasodilator fibers in the pelvic nerves (nervi erigentes) are the nerves of erection. Ephedrine stimulates vasoconstrictor nerve endings and probably in this way prevents erection in some subjects. Libido in man is reported to be increased in some subjects. Since it has been observed that amphetamine, like ephedrine, tends to inhibit erection, the augmentation of libido is probably due to the elevation of mood caused by the amphetamine (Ivy, A. C., and Krasno, L. R.: Amphetamine (Benzedrine) Sulfate: Review of Its Pharmacology, *War Med.* **1**:15 [Jan.] 1941).

Collapse after large doses (30 to 450 mg.) has been frequently reported. Some patients have tolerated as much as 160 to 200 mg. a day; on the contrary, several apparently normal subjects have collapsed after taking 30 mg. at one dose. The student referred to in the question had apparently taken only 30 mg. within five days and 10 mg. a few hours prior to collapse and death, the cause of death being conjectural. Since then apparently only one other death ascribed to amphetamine has been reported. Hertzog, Karlstrom and Bechtel (The Journal, Jan. 23, 1943, p. 256) reported the death of a child 12 months old who had swallowed 40 mg or more of amphetamine plus an unknown amount of ferrous sulfate tablets.

VACCINATION FOR INFLUENZA

To the Editor.—In the Army in Arkansas wholesale vaccinations are being given for influenza. The virus is cultured in the allantoic sac of the egg. Where can I get some information on this vaccine? Can it be used on children and if so what is the dosage?

William J. Schirmer, Captain, M C, A U. S

Answer.—The description of the character of the vaccine being employed against influenza and information concerning its use are published in detail in the *American Journal of Hygiene* **42**:1-105 (July) 1945. This constitutes a series of seven papers which provide data as to its use. The material can be used for children, but the amount should probably be reduced, although accurate determination of the reactions in children with such preparations has not been made. Additional care should be taken to avoid individuals sensitive to eggs

GLUCOSE ADMINISTRATION IN CEREBRAL HEMORRHAGE

To the Editor.—Is the administration of glucose indicated in apoplexy, even when the patient is unconscious? Should not fluids be restricted to avoid more damage to the brain?

J. O. Helm, M D., New Florence, Mo

Answer.—The value of any active treatment during the coma stage of cerebral hemorrhage is arguable. The occurrence of such a major crisis, however, prompts a great desire to do something. One of the reactions to cerebral hemorrhage is the occurrence of cerebral edema. It is assumed that the introduction of a hypertonic glucose solution into the circulation reduces the cerebral edema by the transport of fluid from the tissues to the blood stream. The introduction of such glucose is followed by a considerable diuresis. To bring this about, 50 cc. of a 50 per cent solution of glucose is introduced intravenously. It is doubtful that this amount of fluid, less than 2 ounces, will upset the dynamics of the circulation.

The introduction of large amounts of glucose solution into the circulation is not good treatment. If it is necessary to replace fluids, another avenue should be used and, to introduce food, tube feeding or even rectal feeding should be employed rather than intravenous injection.

LUPUS ERYTHEMATOSUS—BISMUTH IN HYPERTENSION

To the Editor.—A facial lesion of a year's duration in a woman aged 45 was diagnosed lupus erythematosus after biopsy; gold therapy was outlined by a competent dermatologist For the past six years the systolic pressure has been 180 to 200 and the diastolic 105 to 120. She has a history of illness suggestive of acute rheumatic fever, but there has been no evidence of involvement of the heart while she has been under my care However, the sedimentation rate is consistently 20-24 mm in one hour. Having heard of the use of bismuth subsalicylate in oil in the treatment of lupus erythematosus, I would appreciate a comparison of its effectiveness and safety in a patient with hypertension and possible rheumatic heart history.

Hubert C. Miller, M D, Racine, Wis

Answer—Bismuth subsalicylate in oil has been tried by a number of clinicians for the treatment of lupus erythematosus but without encouraging results. The cause of this disease is unknown, and there is no theoretical reason why this preparation should be effective in arresting or ameliorating the clinical manifestations of the disease. Although there are no contraindications to the use of bismuth subsalicylate because of the possible existence of rheumatic heart disease, there may be some hazard in using it on a patient with arterial hypertension. An accelerated arteriosclerosis (so-called malignant hypertension) has been observed to follow the administration of bismuth to patients with essential hypertension. Bismuth may also damage the renal convoluted tubules, especially when administered to patients with a febrile illness such as lupus, which is often associated with considerable toxic damage to the renal parenchyma and specific necrosis of renal arterioles and capillaries.

HEALING OF WOUNDS AND LOW VITAMIN C INTAKE IN ICELAND

To the Editor.—I am interested in the problem of nutrition where there is a shortage of vitamin C In The Journal June 30, 1945 there is an article on this subject from your correspondent in Iceland, and I was wondering whether they have made any investigations on the healing of wounds, having in mind especially the low vitamin C intake I am now making an extensive study of the causes of delayed healing, referring especially to late post-tonsillectomy hemorrhage Are there any reports on the incidence of this condition among the Icelanders?

Harry Neivert, M D, New York

Answer.—In spite of the low intake of vitamin C in Iceland, delayed healing of wounds has not been observed—at least not in any degree diverging from what is considered normal in other countries.

The only people in whom this condition has been seen in a striking degree are the leprous. A sutured wound in a patient with leprosy is frequently hardly glued together after seven days. In these patients the vitamin C content has been found lower than in the general population, the urinary excretion being as a rule below 10 mg. per day and not infrequently as low as 6 mg.

Hemorrhages after tonsillectomies are rare, occurring in only 1 to 2 per cent of the cases. Experienced doctors who have been trained abroad are convinced that these hemorrhages are no more frequent than elsewhere, if not less so.

STORAGE OF PENICILLIN

To the Editor—Please inform me how rapidly penicillin in powder will lose its potency if kept in an atmospheric temperature of around 25 C. Efficient refrigeration is often difficult to obtain nowadays in the Philippines, especially in the field.

Jose F. Tangco, Captain, M C, Manila, P. I.

Answer—Penicillin in powder form may be kept at a temperature of around 25 C. and retain its potency for at least six months, perhaps longer, if the drug is kept in protected package form.

HYPERTENSION AND CERVICAL RIB

To the Editor—In the answer to a query published in The Journal Nov. 24, 1945, page 916, cervical rib was mentioned as a probable cause of tingling sensations in the shoulder. It was reported that the patient presented an arterial tension of 185/110, but no mention is made as to whether the blood pressure was symmetrical in the two arms. Asymmetry of the arterial tension is so common in cases of cervical rib that the latter lesion always should be suspected when asymmetry is discovered, even if otherwise the patient is asymptomatic. The pressure is usually much lower on the side on which symptoms of cervical rib occur. Hypertension on the opposite side may be compensatory; this has been demonstrated in at least 1 case (Propst, D. W., and Stieglitz, E. J.: Differential Arterial Tension, *Am. J. M. Sc.* 184:336 [Sept.] 1932), in which freeing of the cervical rib reduced the hypertension on the opposite side It is an excellent rule to determine the blood pressure on both arms at least once with every patient. If found symmetrical (within 5 mm. of mercury) this procedure need not be repeated. Asymmetry is not discovered unless searched for.

Edward J Stieglitz, M D, Washington, D. C.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 130, No. 3 CHICAGO, ILLINOIS January 19, 1946

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TREATMENT OF MIXED INFECTIONS WITH PENICILLIN

I. With Special Reference to the Adjuvant Action of Parachlorophenol

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New York

CAPTAIN EDWIN J. PULASKI
Medical Corps, Army of the United States

and

FRANCES COLONNA, M.S.
New York

In the course of our study of established infections during the past year and a half, it has been demonstrated frequently that penicillin is of questionable benefit or no benefit at all in the treatment of many infections in which there is a mixture of organisms. In some of these infections there is undoubtedly a synergistic action on the part of the bacteria in the production of the pathologic process. In other cases, secondary contaminants which are not pathogenic or are only feebly so, under ordinary circumstances, are able to multiply in the presence of wound exudate or dead tissue.

Using the wound as a culture medium, these organisms produce metabolic products which may be toxic locally to the tissues of the wound or may be absorbed by the body and give rise to general symptoms. Certain of these metabolic products may also destroy the growth-inhibiting action of penicillin. Abraham and Chain[1] believe this destructive agent to be an enzyme and named it "penicillinase." Its enzymatic nature is further substantiated by the work of Woodruff and Foster.[2] Among the different bacteria which produce this enzyme is the large group of aerobic non-spore forming gram-negative rods, particularly the coliform, the proteus and the pyocyaneus bacilli.

Some strains destroy relatively large amounts of penicillin rapidly, others inactivate it much more slowly or not at all. When the inactivation is slow, this may be offset by increasing the number of units of penicillin in a given dose. The level of penicillin in the wound may thus be kept sufficiently high to eliminate susceptible species, such as hemolytic streptococci or Staphylococcus aureus. If such a level cannot be maintained, the penicillin will not have the expected beneficial effects. A consistent reduction of the level below that required for the bacteriostasis of "susceptible" strains carries with it an additional hazard, since, under these circumstances, the previously "susceptible" strain may acquire resistance and become penicillin fast. It has become increasingly important, therefore to find an antibacterial agent which will eliminate these gram-negative organisms when they are present in mixed infections or in contaminated accidental wounds of soft parts, compound fractures and burns.

As soon as it became apparent in the early part of the study that mixed infections did not respond favorably to penicillin, we planned a series of laboratory experiments. All gram-negative organisms isolated from wound infections were tested for their destructive action on penicillin "in vitro" and for their susceptibility to a series of antibacterial agents known to be effective against gram-negative organisms. We also tested the compatibility of penicillin and these agents in isotonic solution of sodium chloride and in a carbowax 4,000-propylene glycol base. It was our plan to select the agent most effective against the gram-negative bacteria in each individual case and to use this agent in combination with penicillin in the treatment of the infection.

DESTRUCTION OF PENICILLIN IN VITRO BY GRAM-NEGATIVE ORGANISMS

We have tested 134 strains of gram-negative bacteria isolated from wound infections for their destructive action on penicillin. In the majority of these tests we assayed the extracellular penicillinase only. To 1 cc. of an overnight broth culture of the test strain was added 1 cc. of a penicillin solution containing 40 units per cubic centimeter. A control was set up using 1 cc. of beef infusion broth plus 1 cc. of the penicillin solution. These mixtures were incubated for two hours at 37 C. and then tested for penicillin content by the agar plate-penicylinder method against the Oxford strain of staphylococcus.

We repeated the tests with fresh cultures of all strains showing complete or no destruction of the penicillin in the two hour period and the results were essentially the same. In repeat tests with strains which showed partial inactivation there was at times as much as 25 per cent variation in the results, but in no case did we get no inactivation in the retests of these slow inactivators. In certain experiments we used penicillin in human plasma and whole blood to add to the broth cultures of the organisms. Neither the plasma nor the whole blood protected the penicillin from the action of the bacterial penicillinase. Of particular interest to us was the rapid inactivation of the penicillin by the groups of Achromobacters and gram-negative micrococci, organisms which would usually be considered relatively unimportant members of the bacterial flora of the infection. In one infection there was clinical evidence that the gram-negative coccus was inactivating the penicillin in vivo

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The work described in this paper was done under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and the Columbia University College of Physicians and Surgeons

[1] Abraham, E. P., and Chain, E.: Enzyme from Bacteria Able to Destroy Penicillin, Nature, London **146**: 837, 1940.

[2] Woodruff, H., and Foster, J. W.: Microbiological Aspects of Penicillin: VII. Bacterial Penicillinase, J. Bact. **49**: 7-17, 1945.

since, until it was eliminated from the wound by p-chlorophenol, the infection did not respond to penicillin therapy.

We do not wish to create the impression that the gram-negative organisms are the only bacteria in wounds which may destroy penicillin. The great majority of the aerobic gram-positive spore-forming bacilli (B. subtilis group) isolated from mixed infections completely destroyed the growth inhibiting action of 250 to 500 units of penicillin per cubic centimeter rapidly, and the naturally resistant strains of staphylococci also inactivated penicillin.

TABLE 1.—*Destructive Action of Gram-Negative Bacteria on Penicillin*

Organism	Number of Strains Tested	Number with Complete Destruction	Number with No Destruction	Number with Partial Destruction	Average Percentage of Destruction
E. coli	41	3	10	31	64
Coli intermediates	9	1	2	6	73
Aerobacter....	6	1	0	5	60
Proteus	27	2	21	4	60
Pyocyaneus	31	3	1	27	57
Achromobacter. .	5	3	0	2	65
E typhosus	2	0	2	..	..
K friedlanderi ..	1	0	1	..	..
B. alkaligenes .	2	0	0	2	60
S alcalescens	2	0	0	2	40
Micrococcus	3	2	1	..	..

ANTIBACTERIAL AGENTS EFFECTIVE AGAINST GRAM-NEGATIVE ORGANISMS

During the past two years we have tested over two hundred chemical compounds and antibiotic agents for their antiseptic action on aerobic gram-negative bacteria. Unfortunately the great majority of the agents which have a bacteriostatic action in vitro are not suitable for clinical use. An antiseptic should be active in the presence of organic matter and should be able to penetrate into pus or wound exudates and into surrounding infected tissues. It should be soluble or miscible in water in concentrations which will permit further dilution by body fluids and still retain bacteriostatic activity. It must inhibit the multiplication of the bacteria in dilutions which can be tolerated by the tissues, and it should not unduly retard wound healing. Many agents which are highly toxic if administered systemically may be used for local application to infected wounds, since the amount absorbed into and present in the body at any one time is not sufficient to produce a general toxicity.

Among the agents which seem to meet these conditions and therefore are worthy of extensive laboratory and clinical studies are p-chlorophenol, 9-amino-acridine hydrochloride, 5 nitro-2 furaldehyde semicarbazone, streptothricin and streptomycin.

THE HALOGENATED PHENOLS

Of the halogenated phenols which we have tested in vitro, p-chlorophenol seemed to give the most promise of success for clinical use. Klarmann and his associates[3] reported in 1934 that the bacteriostatic and bactericidal action of the halogenated phenols increased with the atomic weight of the halogen atom. The compounds with the halogen atom in the para position were found to be more active than those with the halogen atom in the ortho position on the phenol ring. We reevaluated p-chlorophenol, p-bromophenol and p-iodophenol but found that, under our experimental conditions, the differences in bacteriostatic activity against gram-negative organisms was too small to offset the increase in the toxicity which accompanied the increase in weight of the halogen atom. Klarmann and his associates[4] had also reported that the introduction of the aliphatic and aromatic groups into the halogenated phenols increased the bacteriostatic action and decreased the toxicity. N-amyl-p-chlorophenol was the most bacteriostatic and the least toxic. However, the low solubility of this compound in water more than offset the increase in germicidal activity when compared to p-chlorophenol in our tests. We also tested 4-chloro-o-phenyl phenol and 0-(2, 3, dichloropropyl) phenol but the margin between the concentration necessary for bacteriostasis and the maximum solubility of these compounds in water was too small to permit dilution by body fluids or wound exudates. We therefore focused our attention on p-chlorophenol.

PARACHLOROPHENOL

Physical Properties and Toxicity.—This compound[5] is readily soluble in water or in isotonic solution of sodium chloride in a concentration of 1:200. For clinical use a 1:400 concentration in isotonic solution of sodium chloride or in a carbowax 4,000-propylene glycol (45 to 55 per cent by weight) ointment base was used for local application to infected wounds Its systemic toxicity when injected subcutaneously into mice is 0.6 mg. per gram of body weight. A corresponding dose for man would be 40 Gm., or about 16 Kg. of ointment as prepared for clinical use, which is well above any amount likely to be used. In solution and in the carbowax ointment it has a not unpleasant phenolic odor.

Bacteriostatic and Bactericidal Properties.—For our "in vitro" studies we made up the desired concentrations of p-chlorophenol in beef infusion broth, p_H 7.2, tubed in 5 cc. amounts. We used a heavy inoculum, 0.05 cc. of an overnight culture, to seed the experimental and control tubes. The results of our tests on 140 freshly isolated strains of Gram-negative bacteria are given in table 2.

TABLE 2—*Bacteriostatic Action of P-Chlorophenol on Gram-Negative Bacteria*

		[illegible]		
Organism	Strains	1 1,000	1 2,000	1 5,000
E coli .	44	5	28	11
Coli intermediates	10	0	9	1
Aerobacter ..	6	0	5	1
B pyocyaneus	36	5	19	12
Proteus. .	28	1	27	2
Achromobacter	5	1	0	4
B alkaligenes	3	0	0	3
S alcalescens	2	0	1	1
E typhosus	2	0	1	1
K friedlanderi	1	0	0	1
Micrococcus	3	0	0	3

The concentrations given are those which completely inhibited the multiplication of the organisms after seventy-two hours' incubation at 37 C. The bactericidal level was very close to the bacteriostatic level. In no instance when the tubes were plated after twenty-four hours' incubation at 37 C. were there viable organisms in the 1:1,000 dilution of the p-chlorophenol in beef infusion broth.

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[4] Klarmann, E; Shternov, V A; and Gates, L. W.: The Bactericidal and Fungicidal Actio[illegible] Halogen Phenol Derivatives and Its "Quasi Specific" [illegible] of Parachlorophenol, J Lab & Clin. Med. **19**: [illegible]

[5] Obtained from the Eastman Kodak Company, Rochester, N Y

Compatibility with Penicillin.—We have tested the compatibility of calcium and sodium penicillin with p-chlorophenol in isotonic solution of sodium chloride and in the water soluble carbowax 4,000-propylene glycol ointment. Mixtures of sodium or calcium penicillin 250 to 500 units per gram and p-chlorophenol 0.25 per cent showed no loss of penicillin titer when tested after two weeks' storage at 5 C. After six to twelve weeks' storage, there was a decrease in penicillin activity amounting to approximately 50 per cent. We also determined whether p-chlorophenol had a rapid destructive action on penicillin at body temperature. After forty-eight hours at 37 C., the titer of the penicillin combined with 0.25 per cent p-chlorophenol had not dropped. It would seem therefore that for all practical purposes penicillin and p-chlorophenol may be combined for application to infected wounds.

The ointment is prepared by melting 45 parts of carbowax 4,000 with 55 parts of propylene glycol together either over a free flame or in a hot water bath. When they are thoroughly mixed they are sterilized in a dry oven at 140 C. for four hours and then allowed to cool. As they begin to solidify at 40 C. the penicillin (1,000 units per gram) and parachlorophenol (0.25 per cent) are added. At this stage the ointment may be incorporated sterilely into fine meshed gauze (piece by piece cut to a convenient size) and placed in a pile of fifty or more in a container. A pint or quart sized ice cream box serves as an excellent container. Both the ointment and the impregnated gauze should be kept in the ice box until ready for use.

Clinical Results.—We have never seen any evidence of local or general toxic reaction from the local application of 0.25 per cent p-chlorophenol, although some patients have complained of a slight burning sensation for a short time after it was applied. Dr. Howes tested for us its effect on the healing of experimentally produced wounds of the rabbit's ear and there was no appreciable inhibition. Sinus tracts may be irrigated with a 0.25 per cent solution in isotonic solution of sodium chloride, but for local application to wound surfaces we prefer 0.25 per cent p-chlorophenol in carbowax 4,000-propylene glycol ointment. This may be applied directly or may be impregnated in fine mesh gauze.

The use of p-chlorophenol in wounds infected with gram-negative organisms has given very gratifying results. It eliminated Proteus vulgaris from an osteomyelitis wound when that organism was rapidly destroying recent skin grafts. It did this promptly after its application, although previous treatment with streptothricin had failed. A gram-negative micrococcus was eliminated from another compound fracture wound when the development of granulations had come to a standstill. After its application, granulations promptly started to grow and permitted skin grafting within a few days. It caused the disappearance of a typhoid bacillus after two days' application in a case of typhoid osteomyelitis. It eliminated B. pyocyaneus from a very extensive osteomyelitic cavity in the femur and also from a cecostomy wound in which the pyocyaneus was growing luxuriantly.

P-chlorophenol (0.25 per cent) was used in combination with penicillin (250 units per gram) in the carbowax-propylene glycol base in a very extensive ulcerating infection of the vagina, vulva, perineum and groins following a partial colectomy in a case of chronic ulcerative colitis. This infection cultured a group C hemolytic streptococcus, a coagulase positive hemolytic Staphylococcus aureus, a nonhemolytic streptococcus, Clostridium welchi and an anaerobic gas-forming gram-positive micrococcus, all sensitive to penicillin, Proteus vulgaris, resistant to penicillin and Escherichia coli and resistant to and destructive of penicillin. The p-chlorophenol stopped the destructive action of the E. coli on the penicillin and the ulcers healed rapidly. P-chlorophenol combined with penicillin also eliminated all the organisms from a chronic ulcer of the leg from which proteus, nonhemolytic streptococci and an anaerobic gas-forming gram-positive micrococcus had been cultured and the wound, which had become completely stagnant, was soon epithelized.

Recently we have had some difficulty ridding an operative wound of Pseudomonas pyocyanea in a case of chronic osteomyelitis of the tibia with epithelioma in the old osteomyelitic scar. The cultures yielded hemolytic Staphylococcus aureus and Ps. pyocyanea. The Ps. pyocyanea produced penicillinase. The tumor and scar and the diseased bone were removed and the wound dressed with a silk tampon packed with gauze soaked in an aqueous solution of penicillin 1,000 units per cubic centimeter and 0.25 per cent parachlorophenol. The Ps. pyocyanea was held in check and the wound granulated and accepted skin grafts throughout the area except at one small spot 6 by 3 mm. in diameter on the marble-like eburnated bone, where the bone remained bare and the cultures of Ps. pyocyanea have persisted. This may require further excision of the diseased bone.

In another recent case of chronic osteomyelitis of the femur with sinuses in the thigh, sequestrums around the lesser trochanter and a urinary fistula through the thigh sinuses from which cultures yielded hemolytic Staphylococcus aureus, Ps. pyocyanea (producing penicillinase), Proteus vulgaris and a nonhemolytic streptococcus, the sinus tracts were excised and the sequestrums were removed but the fistula was not closed. The wound was dressed with a silk tampon and puddled with an aqueous solution containing penicillin 1,000 units per cubic centimeter and parachlorophenol 0.25 per cent. Ps. pyocyanea persisted for several weeks but finally disappeared when streptothricin 250 units per cubic centimeter was added to the mixture. The Proteus vulgaris and urinary fistula still persist.

These are the only cases in which Ps. pyocyanea has failed to respond promptly to the local application of parachlorophenol, and we believe the physical nature of these wounds prevented adequate contact. Both may require further operative procedures.

SUMMARY AND CONCLUSIONS

1. The treatment of surgical infections with penicillin makes it of the utmost importance to have a complete picture of the bacterial flora of such infections and to know whether the organisms are susceptible, indifferent or antagonistic to penicillin. The destructive action of the aerobic gram-negative non-spore forming bacteria should be anticipated and attempts to eliminate them should be made before "susceptible" species have developed resistance to penicillin.

2. Of the antiseptics so far tested and which are available at present, p-chlorophenol is the most effective antibacterial agent against gram-negative organisms. In a concentration consistent with clinical safe application, it was bacteriostatic and bactericidal for all the

gram-negative organisms tested, whereas 9-aminoacridine hydrochloride and 5 nitro, 2 furaldehyde semicarbazone were not effective against Ps. pyocyanea.

3. The individual strain susceptibility of the gram-negative organisms isolated from any given infection should be tested for the inhibitory action of parachlorophenol, 9-aminoacridine, 5 nitro, 2 furaldehyde semicarbazone, streptothricin and streptomycin, since the sensitivity of different strains within the same species as well as the sensitivity of different species varies greatly.

4. All of these agents are compatible with penicillin and may be combined for local application to infected wounds.

5. They may be incorporated in a carbowax-propylene glycol base for local application and prolonged action in wounds.

The effect of agents other than parachlorophenol will be reported in subsequent papers.

CHEMOPROPHYLAXIS AND SULFONAMIDE RESISTANT STREPTOCOCCI

LIEUTENANT COMMANDER DOUGLAS S DAMROSCH (MC), U S N R

The use of sulfonamide drugs for the prevention of streptococcic infections and rheumatic fever has been employed by several groups of workers,[1] with generally favorable results In 1943 Watson and his associates[2] used sulfadiazine to interrupt the course of a scarlet fever epidemic in a small naval activity in New York.

In 1943, faced with disturbingly high morbidity rates from streptococcic infections in several naval recruit training centers, a program of chemoprophylaxis was instituted on a scale much larger than that previously employed. The experience during the first six months of that program was highly gratifying.[3] In general there was a reduction in the incidence of streptococcic infections to approximately 15 per cent of the expected rate, as shown in control groups which did not receive the drug.

However, during the following season, the fall and winter of 1944-1945, chemoprophylaxis failed in a number of instances. The development of a satisfactory in vitro test for sulfonamide resistance of group A beta hemolytic streptococci[4] made it possible to attribute this failure to the prevalence of strains which were highly resistant to the drug which was being used prophylactically.

My purpose in this paper is to present the events which occurred following the appearance of sulfonamide resistant group A streptococci in three small training schools in which chemoprophylaxis was used.

DESCRIPTION OF THE SCHOOLS

The three school buildings, which may be called School Red, School White and School Blue, before occupation by the Navy, had been parts of the school system of a large Midwestern city. Red and Blue were junior colleges, and White was a high school. Architecturally they were quite similar, all being three-storied brick or stone buildings. They contained classrooms for 40 or 48 students each, an auditorium, a gymnasium, offices and a cafeteria. School Blue had a single gymnasium but no swimming pool. Schools Red and White each had two gymnasiums and a swimming pool. As all three were day schools, there was no provision for berthing.

The school buildings were taken over by the Navy in 1943 and 1944 for use as training schools in one of the naval specialties School Red was occupied by the Navy in the fall of 1943, White early in 1944 and Blue in the summer of 1944. Conversion to meet naval needs involved minimal structural changes. The gymnasiums and some of the classrooms were used as berthing facilities The remaining classrooms retained their original function. Additional toilet facilities were installed. In each a medical department, staffed by a medical officer and hospital corpsmen, was installed and consisted of a dispensary and one or two wards. The latter were used for the care of minor illnesses and injuries, the more serious or prolonged cases being transferred to a nearby naval hospital.

The pressing demands of the naval training program made necessary a certain amount of compromise with accepted hygienic standards in many instances This was true at the schools being discussed, and in each the exigencies of the service and space available for berthing led to crowded sleeping arrangements Triple decked bunks were employed throughout. At School Red 400 men were housed in each of the two gymnasiums, containing in each instance 6,000 square feet of floor area and 168,000 cubic feet of volume. The smaller bunk rooms housed from 51 to 69 men and contained 720 to 960 square feet of floor area and 10,080 to 13,440 cubic feet of volume respectively. At School White the two gymnasiums berthed 420 men each and the measurements of both were 5,975 square feet and 155,350 cubic feet The smaller bunk rooms berthed 30 to 75 men, and their measurements ranged from 735 to 1,795 square feet and 9,552 to 23,335 cubic feet respectively. At School Blue 240 men slept in the gymnasium (4,500 square feet and 90,000 cubic feet) and from 36 to 60 in the smaller bunk rooms (750 to 1,500 square feet and 11,250 to 22,500 cubic feet).

Spacing of bunks varied somewhat, but in few instances was the space between bunks in excess of

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This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U S Navy The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy [illegible] 89, with the assistance of Lieut D W Colin Livesey, H(S), U S N R, Lieut [illegible] and Pharmacist's Mates P R Carter, [illegible] I Alston, A R Shields, H R Schorr [illegible] and A Goldman

Comdr Alvin F Coburn (MC), U S N R, gave advice during this study

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4 feet. In many rooms the bunks were arranged in blocks of six (i. e. two triple decked bunk sections) with no space between the sections. The men were required to sleep head to foot throughout.

Most of the training at these schools was done in classrooms which required no alteration. Previously existing laboratories were used for special technical work, and some classrooms were converted to that function. The nature of classroom and laboratory work was not in itself of any special consequence as a health hazard.

PERSONNEL

The training course at the three schools was of three and one-half weeks' duration. Trainees were received direct from the several recruit training centers in various parts of the country. The trainees were therefore men who had been in the naval service for a relatively short time. Their past history is, briefly, as follows: After induction these men were sent to a recruit training center, where for approximately ten weeks they were given an intensive course including physical drill and basic naval studies. In addition they received a series of immunizations (smallpox, typhoid and paratyphoid vaccine, yellow fever vaccine and tetanus toxoid). At the conclusion of the training course the men were given ten to fifteen days' leave during which most returned to their homes. At the expiration of leave they returned to the outgoing unit of their recruit training center to await further assignment. It was from such units that trainees at Schools Red, White and Blue were received. On arrival, usually in large groups, the trainees were assigned to companies of about 50 men in each.

During the training period of three and one-half weeks the men received intensive didactic training which necessitated much study and relatively little time off. Liberty was granted one evening each week and from Saturday noon until Sunday night, at which time the trainees were free to engage in whatever recreational activities in the city they desired. At the end of the training period, graduates were transferred to other schools and new groups were received. During these transition periods, occupying one week, there was some mixture of outgoing and incoming groups. Usually the majority of outgoing men had departed before any substantial number of new trainees arrived. There was very little traffic between Schools Red, White and Blue. In each period there was a relatively small group which was held over for the next course, being those men who were allowed to repeat the course having been ill or otherwise deficient during their regular course.

In addition to trainees, each school had a relatively stable group of permanent personnel who served as instructors and carried out administrative duties. This group represented approximately 10 per cent of the personnel at each school. The observations in this paper are confined to the trainees.

PAST EPIDEMIOLOGIC EXPERIENCE

Only one of the schools (Red) had been in operation during the entire winter of 1943-1944. The experience of School Red during that period served to point out some of the epidemiologic characteristics of all three, however, and offered indications as to the necessity of institution of streptococcic disease control. Table 1 summarizes the experiences of School Red with respect to certain acute respiratory infections during the winter of 1943-1944.

It must be borne in mind that the population of the schools was not a static one. Each month a new group of trainees arrived, and this represented a continuous inflow of susceptible individuals. Trainees were found to present varying degrees of infection on arrival, reflecting to a great extent the incidence of infection at the recruit training centers whence they came. In general, during the summer months, trainees arrived relatively free of infections, as indicated by low rates of illness during the week following arrival, and remaining free of infection during their training course. In fall and early winter, comparatively few were ill during the first week of their stay but the incidence of disease rose sharply thereafter, reaching a peak shortly before the end of the training period. In midwinter many more men were ill on arrival or became ill during the the first few days on the station, and thereafter, as before, the incidence rose gradually during the remainder of the training period.

TABLE 1.—*Incidence of Various Respiratory Infections at School Red During the Winter of 1943-1944*

	Monthly Rates per Thousand Men						
	1943		1944				
	November	December	January	February	March	April	May
Scarlet fever	17.4	19.9	32.3	15.9	8.0	4.0	4.1
Catarrhal fever	70.5	64.1	45.8	15.1	40.5	19.2	9.8
Pharyngitis	64.8	30.7	76.3	28.2	18.6	15.2	24.4
Tonsillitis	19.3	23.5	34.2	19.8	18.6	12.0	18.7

TABLE 2.—*Incidence of Group A Beta Hemolytic Streptococcus Infections at School Blue in Sulfadiazine Treated and in Control Groups, 1944*

	Control Group			Treated Group		
	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand
	First Period					
Nov. 15 to Nov. 21	8	420	19.0	2	390	5.1
Nov. 22 to Nov. 28	12	417	28.8	0	388	0.0
Nov. 29 to Dec. 5	6	432	13.9	3	370	8.1
	Second Period					
Dec. 12 to Dec. 22	14	392	25.0	11	436	17.6

When School White went into commission in February 1944, it promptly began to show an incidence and behavior of respiratory disease comparable to that at Red. School Blue had not opened until the summer of 1944 and therefore furnished nothing on which to predict the winter's morbidity other than a close resemblance to White and Red from the standpoint of hygienic circumstances. On the bases of the latter, high respiratory morbidity was anticipated.

During the summer of 1944 all three schools were relatively free of infection, with only 1 or 2 admissions a week for respiratory disease. During October they simultaneously began to show a progressive rise, and by the first of November each had attained a total respiratory rate in excess of 500 per thousand annually. It was therefore decided to institute chemoprophylaxis.

METHOD OF STUDY

For a period of approximately one month prior to the institution of chemoprophylaxis, throat cultures were done on all men admitted to the sick list with acute respiratory infections. This was done in order to determine the streptococcus flora during that period.

The general plan for the administration and study of sulfadiazine prophylaxis was essentially the same at the three schools. The trainees were divided into two approximately equal groups, one group to receive prophylaxis and the other to serve as untreated controls. The assignment to the groups was made by taking alternate companies of about 50 men each. Companies were made up as the men reported for training. Throughout the study, control and treated groups in a particular school were in close association with one another, since in most instances they were bunked together and shared the messing, training and recreation facilities.

TABLE 3.—*Incidence of Group A Beta Hemolytic Streptococcus Infections at School Red in Sulfadiazine Treated and in Control Groups, 1944*

	Control Group			Treated Group		
	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand
			First Period			
Nov. 14 to Nov. 20.......	12	451	26.6	2	476	4.2
Nov. 21 to Nov. 27.......	13	458	28.4	2	465	4.3
Nov. 28 to Dec. 4.........	14	458	30.6	1	458	2.2
			Second Period			
Dec. 12 to Dec. 18........	15	530	28.3	4	455	8.8
Dec. 19 to Dec. 25........	15	530	28.3	11	448	24.6
Dec. 26 to Jan. 2... . ..	21	530	36.4	13	452	25.2

The treated group received a daily dose of 1 Gm. of sulfadiazine throughout the three and one half weeks of the training course. The control group received no medication. When any man in either group was admitted to the sick list with an acute respiratory infection, a throat culture was done. In addition, from members of the treated group who developed such infections blood was drawn for determination of sulfadiazine level. Both procedures were done at the time the men were admitted to the sick list, usually at morning sick call, from eighteen to twenty-four hours after their last dose of sulfadiazine. Throat swabs were placed in tubes containing broth, collected once daily by the Epidemiology Unit and transported to the laboratory, where they were inoculated into sheep's blood-agar pour plates. From plates positive for beta hemolytic streptococci a colony was fished, grown out in tryptose phosphate broth and grouped. Group A strains were sent to the streptococcus typing laboratory at the Naval Medical School in Bethesda, Md., where typing and resistance studies were done. Typing was done by the capillary precipitin method of Swift, Wilson and Lancefield.[5]

At the end of the training period of three and one-half weeks, prophylaxis was discontinued in each case for one week during which time drafts were arriving and departing. The process of assignment to treated and control groups was then repeated and prophylaxis resumed.

Men who became ill were hospitalized and therefore removed from their groups, usually not returning to duty until the next training period. Fitness for return to duty depended on the man's clinical condition, no attempt at bacteriologic control of convalescent carriers being made. Men with mild respiratory infections remained on duty and are not considered as admissions nor were they confined.

RESULTS

School Blue.—During the preliminary period of study (October 18 to November 14) before chemoprophylaxis was begun, throat cultures were done on 111 men admitted to the sick list with acute respiratory infections. From 45 of these, group A streptococci were recovered. Of these, 20 were type 19, 18 were type 17 and 3 were type 3, and in 4 the type was not determined. Of forty of these strains tested, none showed in vitro resistance to sulfadiazine.

The first period of chemoprophylaxis extended from Nov. 15 to Dec. 5, 1944. During this time there were 26 Group A streptococcic infections in the control group and 5 in the treated group. Of the latter, 1 individual showed no blood sulfadiazine, 3 showed traces and 1 showed a level of 1.7 mg. per hundred cubic centimeters. During this period four of the strains were found to be resistant, 2 occurring in the control group and 2 occurring in the treated group. The first of the resistant strains was recovered five days after the use of sulfadiazine was begun. Three of the resistant strains were of type 19 and one was type 17. Susceptible strains included these two types and in addition types 3 and 36.

During the period from December 5 through December 11, prophylaxis was started in half of the new trainees. During the next ten days there were 14 group A infections in the control group and 10 in the treated group in spite of the fact that most of the men in the treated group had blood sulfadiazine levels of at least 1.5 mg. per hundred cubic centimeters. When the reports of resistance studies became available, it was found that 10 strains of 18 tested during this period showed resistance in vitro. All of the resistant strains were of type 19, while the susceptible strains included types 19, 17 and 3. Five of the resistant strains occurred in the treated group and five in the control group.

TABLE 4.—*Incidence of Group A Beta Hemolytic Streptococcus Infections at School White in Sulfadiazine Treated and in Control Groups, 1944*

	Control Group			Treated Group		
	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand	Number of Group A Infections	Number of Men in Group	Weekly Rate per Thousand
			First Period			
Nov. 7 to Nov. 13.	4	676	5.9	0	444	0.0
Nov. 14 to Nov. 20 . .	6	703	8.5	0	393	0.0
			Second Period			
Nov. 28 to Dec. 4 . .	15	611	24.5	1	575	1.7
Dec. 5 to Dec. 11.	17	603	28.2	3	555	5.4
Dec. 12 to Dec. 20 . .	19	510	28.9	13	512	19.7

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[5] Swift, H. F.; Wilson, A. T., and Lancefield, R. C.: Typing Group A Hemolytic Streptococci by M Precipitin Reactions in Capillary Pipets, J. Exper. Med. 78: 127-133 (Aug.) 1943.

Wilson's test for sulfonamide resistance is performed by measuring the ability of small inoculums to grow in the presence of varying concentrations of sodium sulfadiazine in a semisolid, semisynthetic medium reinforced with horse serum. Strains inhibited by 5 mg. or more of sodium sulfadiazine per hundred cubic centimeters of medium were considered susceptible. Those which grew in the presence of 5 mg. or more per hundred cubic centimeters of medium were considered resistant.

On December 22 the controlled study was abandoned in an effort to curb the rising morbidity, all trainees being at that time included in chemoprophylaxis. By Jan. 2, 1945, however, it had become obvious that the drug was having little or no effect. The incidence of group A infections remained high even though practically all of the men becoming infected had high blood levels. At that time the epidemiologic impression that chemoprophylaxis was no longer effective was substantiated by reports received from the Bethesda laboratory that strains of streptococcus showed in vitro resistance to sulfadiazine. Chemoprophylaxis was therefore discontinued. During the eleven days when all trainees received sulfadiazine there were 58 group A infections admitted to the sick list, including 24 cases of scarlet fever. Forty strains from these men were typed and all but one found to be type 19 (the other could not be typed). Of twenty-two of these strains tested for resistance, 16 were resistant and 6 susceptible to sulfadiazine in vitro.

School Red.—During the preliminary period of study (October 20 to November 13) before prophylaxis was begun, throat cultures were done on 67 men admitted to the sick list for acute respiratory infections. Group A hemolytic streptococci were recovered from 21. Ten were type 17, one type 19, two type 3, and the remaining eight were not typed. Sixteen cultures were tested for resistance but none was resistant.

The first period of controlled chemoprophylaxis was, as at School Blue, successful. In the control group there were 39 group A streptococcic infections and in the treated group there were only 5. During this period three resistant strains were recovered, two in the control group and one in the treated group. The first one (a type 17 strain) was recovered only three days after chemoprophylaxis began from a case of scarlet fever occurring in the treated group. The other two resistant strains belonged to types 17 and 3 respectively.

When the new group of trainees who arrived during the period December 4 to December 10 was started on chemoprophylaxis, the infection rate in the treated group was considerably lower than in the control group during the first week. For the next two weeks, however, infections increased in the treated group, even though satisfactory blood sulfadiazine levels were being found in most men. Five showed no blood sulfadiazine, 15 showed levels of less than 1 mg. per hundred cubic centimeters and 20 had levels over 1 mg. per hundred cubic centimeters. During the first week of this period, four more resistant strains appeared, two (both type 3) in the control group and two (types 3 and 17) in the treated group. During the whole period (December 11 to January 2) eleven of thirty-five (32 per cent) of the strains tested from the control group were resistant. Susceptible strains seemed to have disappeared from the treated group, since of eleven strains tested all were resistant. The resistant strains belonged to types 17 and 3.

School White.—During the period October 18 to November 6, before chemoprophylaxis was started, throat cultures were done on 54 respiratory admissions and group A hemolytic streptococci were recovered from 11. Four of these belonged to type 19, two to type 3 and one each to type 17 and 28. Of eight strains tested, none was resistant to sulfadiazine.

The first period of controlled chemoprophylaxis began on November 6 and extended for two weeks, having been started after the men had been in training one week. In the control group there were 10 group A infections, while the treated group had none. From the 10 infected men in the control group, organisms of types 3, 17 and 19 were recovered, all susceptible to sulfadiazine in vitro.

The second period (December 11 to January 2) began favorably and for the first two weeks infections were considerably higher in the control group than in the treated group. During the final nine days, however, there were 13 infections in the treated group as compared with 19 in the controls. The first resistant strain appeared on the third day of the prophylaxis and occurred in a member of the control group. This man had arrived one week previously from a recruit training center where resistant strains are known to have been present. During the next ten days only two more resistant strains appeared, one each from the controls and treated groups. During the final weeks, however, an abrupt increase in the prevalence of resistant strains took place coincident with the increase in infections in the treated group. During this whole period of forty-one strains from the control group tested, ten (24 per cent) were found to be resistant in vitro. In the treated group twelve of fifteen strains (80 per cent) were resistant. Types 17, 19, 3, 30 and 6 were all encountered during the period, but resistant strains all belonged to type 3.

SUMMARY AND COMMENT

In November and December of 1944 a controlled program of chemoprophylaxis against hemolytic streptococcus infections was employed in three small naval training schools. The incidence of such infections had, both during the period of observation and in the past, reached epidemic proportions. The factors considered to have predisposed to this condition are as follows: (*a*) Owing to the exigencies of the service, crowded living conditions unavoidably prevailed; (*b*) there was a repeated introduction of susceptible individuals because of the fact that each month there was a nearly complete turnover of personnel; (*c*) trainees were received from recruit training centers, several of which had a high incidence of streptococcic infections; (*d*) the schools were located in an area where the climate in winter is favorable for the dissemination of streptococcic infection.

The epidemiologic picture at the three schools was considerably different from that seen in more static populations. The repeated introduction of susceptible individuals produced winter-long epidemics, which varied with the degree of infection at the training centers whence the trainees came and also with the local epidemic situation in the school into which they came. Instead of a curve rising to a peak and then gradually decreasing, the epidemic curve at the schools being discussed was represented by a series of peaks occurring late in the training period of each group of trainees, the level of the curve and the magnitude of the peaks becoming progressively higher during the winter.

In November 1944 rising streptococcus morbidity rates led to the institution of sulfadiazine prophylaxis. In each school the first period of chemoprophylaxis was successful, significantly fewer streptococcic infections occurring in the groups receiving prophylaxis than in the control groups. During this period sulfadiazine resistant streptococci were not recovered in one school and were present in small numbers in the other two.

The second period of chemoprophylaxis with new trainees resulted in a progressive failure to prevent streptococcic infections in the treated group. This failure was related to the increasing prevalence of strains of group A hemolytic streptococci which showed in vitro resistance to sulfadiazine.

The question of the mechanism of drug resistance is controversial. It is not known whether it represents a genetic mutation occurring spontaneously in nature, the mutants being selected for survival because of their ability to withstand the presence of the drug, or whether the drug itself induces a change in the organism by direct action. Regardless of which of these happens to be correct, the resulting epidemiologic problems are the same, once resistant strains occur.

It is a matter of considerable interest, however, to know how frequently streptococci become resistant to sulfonamides, and unfortunately it is impossible from the data at hand to make a reliable estimate of this. In the epidemics which have been described here it is impossible even to say whether the resistant strains which became prevalent acquired their resistance locally or were imported from a naval training center where resistant strains of the same types were known to have existed and from which drafts of men were frequently received. The number of men from that training center constituted from 1. to 5 per cent of the total trainees, and drafts had been received from there during the six months preceding this study. The appearance of resistant strains at each of the schools was preceded by the arrival a week to ten days previously of drafts of men from that training center. It is quite possible that some of these men were carriers of resistant strains. (To establish the possibility of this origin of the strains, cultures were taken of 58 men from that training center on arrival. Twenty [34 per cent] were found to be group A hemolytic streptococcus carriers, 9 [16 per cent] were carriers of types 3, 17 and 19, and of five of the latter strains tested, two were sulfadiazine resistant in vitro.) If one postulates the introduction of resistant streptococci by these men, one is confronted with the question of why the strains were not recovered during the period prior to chemoprophylaxis and were present in such small numbers during the first period of chemoprophylaxis. This question cannot be answered with any degree of certainty. It may be that the strains were actually present in small numbers during the early part of this study and did not spread at that time because of the absence of epidemic conditions. The possibility, however, that the resistant strains encountered here were not derived from existing strains but acquired resistance during chemoprophylaxis cannot be denied.

The question of the duration of resistance in a particular strain is also one which cannot be answered by data at hand. Four months after the termination of chemoprophylaxis in the three schools under discussion, resistant strains of types 17, 19 and 3 were still prevalent. However, this does not necessarily mean that the strains were the progeny of those previously encountered, for during those four months more than 90 per cent of the trainees received came from a training center at which these strains had become prevalent.

CONCLUSIONS

1. Sulfadiazine given in daily doses of 1 Gm. effectively prevented acute respiratory infections by group A beta hemolytic streptococci in the absence of sulfadiazine resistant organisms in three small naval training schoools.
2. Sulfadiazine prophylaxis became progressively less effective as strains showing in vitro resistance to the drug became prevalent.

THE TREATMENT OF COMPOUND FRACTURES OF THE FEMUR

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War offers an unexcelled opportunity for the observation and study of compound fractures. From diverse theaters of war a large number of these injuries, which were originally treated by other surgeons, are finally brought under uninterrupted supervision with almost ideal hospital facilities so that the results of different methods of therapy can be studied and compared. Under these conditions, impersonal conclusions can be reached which are not hampered by the unavoidable human optimism that may cloud the opinion of the proponent of some particular method of treatment.

This injury is a serious surgical problem. In World War I the record shows a total of 5,138 compound fractures of the femur with a mortality in the vicinity of 23 per cent and with a permanent disability of more than 50 per cent in 48 per cent of the cases (fig. 1).

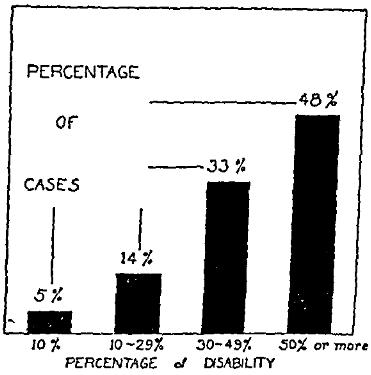

Fig. 1.—Rating for disability in the 5,138 fractures of the femur in World War I.

Our object in this study is to review the late results of 163 fractures of the femur and to formulate conclusions against the background of our own experience in two separate theaters. The series includes 117 compound fractures, of which 17 had been treated by early internal fixation. To obtain the proper standard for comparative study, 46 simple fractures are included, of which 24 had been treated by early internal fixation. By inclusion of these four groups (table 1) we hope to throw some light on the etiology of such complicating factors as sepsis, nonunion, deformity and knee stiffness.

Of the 41 fractures treated by open reduction with internal fixation, 36 were fixed by a six-screw plate and 5 by multiple transfixion screws alone. In the 122 fractures treated by traction-suspension alone, skeletal traction was secured by Kirschner wire or Steinman pin inserted in the distal end of the femur or proximal end of the tibia, depending on the level and nature of the fracture. The extremity was suspended in the Keller-Blake half-ring splint with Pierson attachment and balanced by adequate weight, the knee being kept in varying flexion, 15 to 30 degrees. This treatment was begun in the theater of war and usually, when callus formation appeared to be adequate, these fractures were immobilized in a 1½ plaster spica and the patients were transported to general hospitals in the zone of the interior. On arrival, immediate attempt was made to change these patients back to a traction suspension splint. In general, transportation has led to very few difficulties or complications except in rare cases which were transported at a period when the fracture site was not solid enough.

Paper published under the auspices of the Section on Orthopedic Surgery.

Although disagreement often occurs regarding technics of treatment, there is complete concurrence in what the primary ideal goal should be—to convert a compound fracture into a simple fracture, an open into a closed fracture. That method which produces the earliest healing of the wound is ultimately the most successful, for skin is the only covering which protects human tissue from such enemies as infection or thermal changes. It is the protecting shield given by nature to safeguard the deeper tissue from damage. The history of wound treatment in the past is an incessant search for wound cover by a multiplicity of methods which attempted to substitute chemical substances, dressings or plaster for this normal shield.

The initial and most vital factor in preparing a compound wound for ultimate closure is complete and thorough débridement performed at the earliest possible time after injury. No change in this opinion has been caused by modern chemotherapy. The operation should consist in excision of the contaminated skin border and removal of all devitalized tissue and of all small fragments of bone which are completely unattached. Removal of very large bone fragments, often making up whole segments of the shaft, is not indicated because they often become revascularized, and, if removed, they create a serious problem in late reconstruction. The hand of conservatism is further strengthened by the fact that large bone fragments, when they do sequestrate, are easily removed after they have served as a bridge for new bone formation. Metallic foreign bodies which are readily accessible should be taken out, but a tedious search for inaccessible small fragments is not advisable unless they lie within a joint cavity. It is remarkable how little bother these multiple shell fragments produce, although a relatively infrequent but important number of cases in which they lead to arterial aneurysms or arteriovenous fistulas must be kept vividly in mind. On the other hand, nonmetallic radiotransparent foreign bodies have been, in our experience, an annoying source of infection and persistent drainage. In these cases we have found as offending agents pieces of clothing, leather and even parts of rubber heels.

The element of time is one of the essential factors in the success of débridement. Cases in which operation was performed within the first twenty-four hours gave a higher percentage of success, as shown in table 2, which includes patients treated without the introduction of any type of internal fixation. The latter were purposely excluded, as they would have confused the issue with new problems.

Although local factors may alter the situation, the advisable surgical procedure after forty-eight hours seems to be wide incision for drainage and the removal of any large masses of necrotized tissue, rather than a formal débridement.

After successful débridement the selection of a method of treatment offers many alternatives, the main ones being (1) closed plaster technic, popularized in its original form in this country by Orr, (2) the Carrel-Dakin technic, (3) surgical closure of the wound by (*a*) primary suture, (*b*) free skin graft, (*c*) delayed closure. The closed plaster technic has the advantages of ease in handling and comfort in transport. It avoids new bacterial invasion because of infrequent dressings and clears up dead tissue by the proteolytic effects of bacteria. A material benefit from this method is the localization of infection by complete splinting. Against these advantages are the obvious adverse factors of healing with large adherent scars, which often mat down muscles, fascia and nerves; the chronic absorption of toxins with resulting toxemia, the loss of protein from chronic exudate, and especially heavy scar formation with delayed healing, leading to an unavoidable delay in the performance of reconstructive surgery. The field of application of this method is still large, because many wounds are too extensive to be closed, and its value in transportation makes its use imperative. However, we do not believe that large wounds treated by this method should be allowed to go unaided with resultant formation of a large contracting scar, but that instead the wound should be vigilantly watched for the opportunity to close it or reduce its size by the use of a free skin graft, skin flaps or, if necessary, ostectomy. The Carrel-Dakin method of chemical irrigation, although no longer used as a method complete in itself, is still of great value as a procedure for the preparation of wounds, and we have not infrequently taken advantage of it to free a wound of minor necrotized tissue and superficial sepsis in preparation for some secondary closure.

Primary suture has been widely used in civilian practice, offering a brilliant method of rapid transmutation of an open into a closed fracture. It is particularly useful in fractures compounded from within or those presenting little injury to soft tissue, but in the large wounds both in civilian life and in war surgery the hazard of an occasional infection, principally of an anaerobic type, leading to loss of life or limb, creates a need for a safer approach to the problem. To circumvent this hazard, surgeons started covering the wounds immediately after débridement by large free split thickness skin grafts which were loosely sutured as a wound dressing. This procedure often gives brilliant results (fig. 2), although at times the plastic removal of adherent skin at a later date may be necessary. One of us (R. S.-H.) used this method in a number of recent air war wounds and found it free of danger. The method should always be considered when the surgeon is confronted with a wound area too large for secondary closure.

TABLE 1.—*Treatment of Fractures of the Femur*

Internal fixation	
Simple	24
Compound	17
No internal fixation	
Simple	22
Compound	100

TABLE 2.—*Time of Débridement*

		12 Hrs.	24 Hrs.	48 Hrs.	72 Hrs.	Unknown
No infection	29	23	4	..	..	2
Mild infection	44	28	9	..	..	7
Severe infection	27	11	9	5	2	..
Total patients	100					

Realizing that early closure of the wound and prompt establishment of function was desirable, certain surgeons toward the end of the last war cautiously began to carry out delayed primary suture and secondary suture. This was done, however, with the ever present fear of stirring up severe infection, particularly of the anaerobic type, and in the history of the last war[1] it was strongly emphasized that "cooperation of a bacteriologist is indispensable in making the decisions as to the indications for delayed primary or secondary suture." On the other hand, surgeons in this war have taken up with enthusiasm this secondary operation, and their almost unanimous opinion seems to be that bacteriologic reports are no longer of definite importance but that the clinical appearance of the wound is the deciding factor. This difference of approach to the same surgical goal comes in part as a result of the use of modern antibacterial agents, which have removed the hazards from these procedures. It should be emphasized, however, that neither penicillin nor the sulfonamide drugs should be used with unbounded confidence as prophylactic remedies because, as has often been stated, they are ineffective in the presence of devitalized tissue; so that closure should not be attempted when this is present.

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[1] Ireland, M. W.: The Medical Department of the United States Army in the World War, Washington, D. C., Government Printing Office, 1927, vol. 11, pp. 304-314.

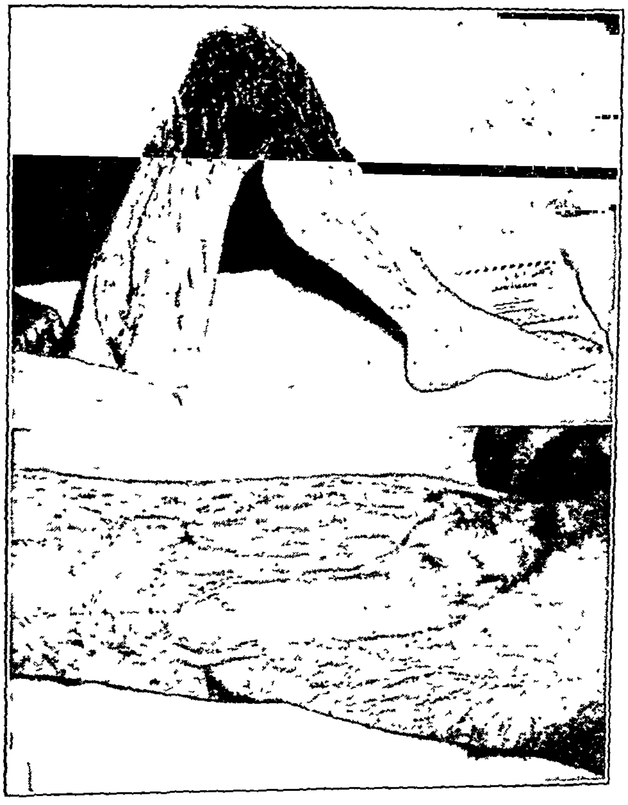

Fig. 2.—Patient was wounded Oct. 2, 1944 in France, when he stepped on an antipersonnel mine. He had immediate débridement. There was loss of about 50 pe[illegible] muscles. October 16 in a general hospital in [illegible] he had the skin graft, which healed. Flat [illegible] hs after large wound had been covered with a split thickness [illegible] lent range of knee motion.

Delayed primary suture is defined as that procedure in which the edges can be approximated without excision and will then heal, whereas, in secondary suture, excision of the granulation tissue and of the whole wound is necessary for successful healing. The procedure is similar to that used for excision of an ulcer. The stage of repair of the wound and therefore the time factor determine the type of procedure to be used. In the period of time between débridement and the performance of delayed closure the wound should be left freely open with a gently placed pack of plain or petrolatum gauze, and the fracture should be well splinted. The most ideal period for delayed primary closure of femoral fractures appears to be between the seventh and the twelfth day. Table 3 is not in itself conclusive evidence but does confirm our clinical experience.

It is not our purpose to discuss the technical details of delayed closure, which have been fully described in the recent literature, except as they may be seen to have effect on the late results. The brilliant work of Churchill,[2] Lyons [3] and Hampton [4] has emphasized the importance of adequately preparing the local factors as well as the systemic factors for this procedure. Restoration of total blood protein and of a normal hematocrit and red cell count plus the avoidance of a vitamin C deficiency have all been shown to be of importance. Local factors leading to successful closure are an approximation of the tissues without tension, proper splinting and the avoidance of dead space, plus good hemostasis. Among the most serious infections we have seen are those in which the last two principles have not been observed. In all cases in which the control of bleeding is in doubt or in which there is dead space posterior counter drainage should be instituted, for otherwise this leads to an infected blood clot or abscess formation with subsequent death of bone. Counter drainage for a period of two to three days seems to us to be indicated for a large proportion of cases. When successful delayed closure has been obtained, the general condition of the patients has been excellent and locally there is a firm and supple scar which allows early remedial exercises and which also permits the performance of reconstructive surgery much sooner.

Table 3.—*Time of Delayed Closure*

		1st Week	2d Week	3d Week	4th Week
[illegible]	19	5	12	1	1
[illegible]	10	1	4	2	3
	4	1	1	2	..
Total patients..........	33				

INCIDENCE OF INFECTION

A very high proportion (29 per cent) of compound fractures without internal fixation healed without sepsis. When this group is added to the 44 per cent which healed within two or three months and which we have classified as mild infection because they represented mainly soft tissue sepsis, the whole picture presents a brilliant achievement of war surgery. The infected group (27 per cent) includes many cases of extensive loss of soft and bone tissue with vascular damage in which sepsis is almost unavoidable (fig. 3). Of those cases treated by early internal fixation through an open wound, a total of 19 were seen by us, 17 of which are included in this study. In these the incidence of severe sepsis was about 50 per cent higher than in patients treated without metal fixation. In most of these men the plates or metal had to be removed. An almost identical finding was noted in the series of compound fractures of other long bones treated by early metallic fixation, which we now have under study, with the exception that in the tibia the prognosis seems to be somewhat worse than in the other bones. Of particular interest is the fact that in some cases severe infection seemed to be under control for several weeks while chemotherapy was being administered, manifesting little local or general reaction but later became clinically evident. This factor may explain the enthusiasm of some surgeons in the forward areas who have not had the opportunity to follow the later phases of the problem. Two illustrative cases are the following:

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[2] Churchill, E. D.: Surgical Management of Wounded in Mediterranean Theater at the Time of the Fall of Rome, Ann. Surg **120:** 268-283 (Sept.) 1944; Bull. U. S. Army M. Dept., January 1945, No. 84, pp. 58-65.

[3] Lyons, C.: The Philosophy of Wound Management in the United States Army, Bull. Am. Coll. Surgeons **30:** 13-14 (Feb.) 1945.

[4] Hampton, Oscar P., Jr. Personal communication to the authors.

Patient 1, wounded by a shell fragment Oct. 14, 1944, sustained a slightly comminuted compound fracture. October 14, within twelve hours, débridement of the wound and application of a spica cast were done. On October 22 secondary closure of the wound was done and through a separate incision the fragments were fixed together by four metallic screws. No counter drainage opening was made. The patient received penicillin from the date of injury to the date of secondary closure, and penicillin was continued postoperatively for several weeks. On arrival at the zone of the interior in January 1945 he presented profuse drainage, a temperature of 104.10 F. and a large abscess in the postlateral part of the thigh which necessitated surgical incision. On February 12 the screws were removed. Despite severe infection and drainage the fracture was felt to be united on February 11, although a large area of bone had sequestrated. Further surgery will be needed.

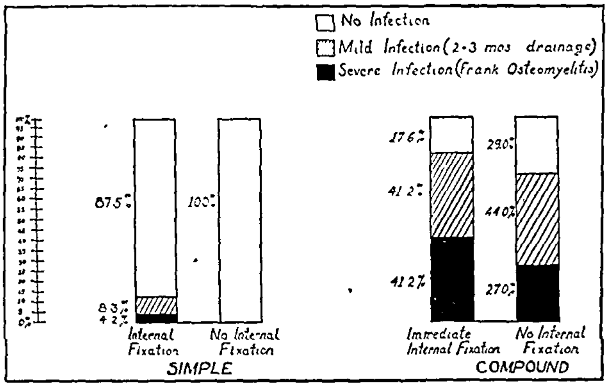

Fig. 3.—Incidence of infection in fractures of the femur. Under internal fixation in the compound group are included cases which had been plated within the first month, either in the presence of an open wound or within two weeks of its closure.

Patient 2, aged 27 years, was struck by a shell fragment in the right lower thigh March 2, 1944, sustaining a compound comminuted fracture of the left femur and wound of the right thigh. On March 5 gas gangrene appeared in the right thigh and midamputation was done. On March 19 operation was performed on the patient and a metallic plate was placed in the left femur in the presence of an open wound. No counter drainage was employed. Traction was used following the operation until March 25, when a left hip spica was applied. On June 15 a large abscess of the left thigh was incised and drained. The right stump healed in five weeks. X-rays on August 15 showed an extensive comminuted fracture of the left third of the femur with obvious osteomyelitis, and many sequestrums could be distinguished. Because of persistent drainage of the left femur on September 12, a sequestrectomy was done and the plate was removed. This led to reduction in drainage and increased comfort of the patient. Penicillin was used before and after operation for several weeks.

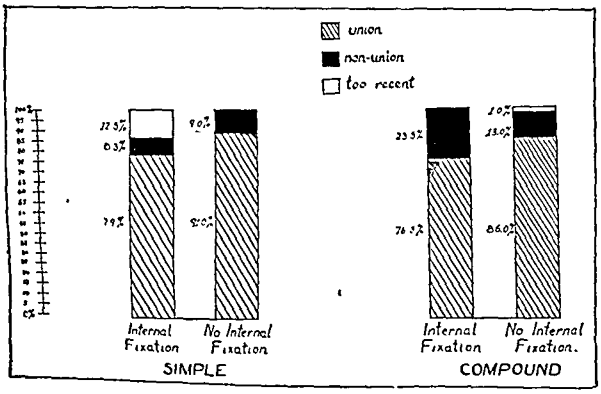

Fig. 4.—Incidence of nonunion in fractures of femur.

In this series, cases treated by internal fixation have been done at various stages and with some difference in technic. The operation has been done at times immediately after injury through the compound wound or after closure of this wound by immediate fixation through a separate incision or, lastly, delayed a few days until the wound has healed. The best results and the procedure which seems to us to offer the least danger for that type of fracture wherein internal fixation appears indicated consisted in the following sequence: A thorough débridement was done early, and this was followed by delayed closure of the wound, performed about seven to ten days later. After healing of the original wound (an average of sixteen days) the fragments were approximated through a separate longitudinal incision and held together by metal fixation. When the type of fracture allows, the use of screws has given better results than the plate, probably because of the lesser surgical trauma. As previously mentioned, a small counter drainage incision may be advisable.

EFFECT OF CHEMOTHERAPY

Seventy-three cases of the total 100 compound fractures treated without internal fixation had adequate record of the use of chemotherapy. This included both penicillin and a sulfonamide compound or both. Locally the sulfonamide drug had been used almost universally as a first aid, but we have felt that an evaluation of its use could not be made in the zone of the interior and have included in the group only cases of adequate systemic administration. These findings again prove the fact that modern antibacterial agents may produce excellent results in controlling infection and in reducing complications but that they are impotent in the presence of tissue which has lost its blood supply and which does not allow the drug to come in contact with infection.

Table 4.—*Study of Effect of Antibacterial Agents in 100 Cases of Compound Fractures of Femur*

	Total	Recorded Use of Anti-bacterial Agents	Sulfon-amides	Penicillin	Sulfon-amide and Penicillin
Clean..............	29	24	3	7	14
Mild..............	44	28	7	12	9
Severe..............	27	21	1	4	16
	100	73			

The effect of antibacterial drugs is shown in table 4.

INCIDENCE OF NONUNION

For the purpose of standardization, five months has been used as the period of time considered normal for the completion of bone healing. When union occurred between five and seven months it was classified as delayed union, whereas cases which showed neither clinical nor radiologic evidence of bone union beyond seven months were classified as having reached the stage of nonunion. In a few instances, however, such as in the absence of a large segment of bone, the diagnosis of nonunion was made earlier. For simplicity of demonstration, only the nonunion cases are shown in the graph. Considering the frequency of severe injury with comminution and absence of bone fragments, the proportion of bone union in the cases treated by external splinting was extremely high, 86 per cent. This was definitely higher than the finding in fractures treated by internal fixation. A comparison of the behavior of union in simple fractures treated both by open and by closed reduction seems also of value, because it demonstrates that in spite of the improved apposition of fragments in the open cases there is little difference in the period needed for bone healing (fig. 4).

The state of delayed union and of actual nonunion appears directly related to degree of bone loss or damage, distraction and the presence of infection, particularly of a severe type. Distraction, even of a very minimal amount, is particularly harmful. To avoid separation of fragments due to excessive weight, we believe that a very satisfactory way of handling the Thomas splint is to reduce the fracture manually and then use the traction suspension as a method of holding the reduction rather than of producing traction. There are, in addition, certain mechanical factors existent in instances in which internal fixation has been employed. The immediate effects of the foreign body are often gratifying, such as restoration of axis alinement and of end to end approximation. The delayed effects may be vicious: (*a*) Distraction appears to be a paramount influence. This distraction interval appears late and is due to actual resorption at the bone ends, a normal finding in the process of fracture healing. This factor is eliminated in transverse fractures in which no rigid device is employed, internal or external, and in which the bony ends may continue to approximate, as they may in traction suspension; nor is this factor dominant in oblique fractures, which lend themselves so well to multiple screw transfixions. (*b*) There is occasional loosening of plates and screws. (*c*) Failure of callus formation occurs on the side adjacent to the foreign body, which is strikingly evident in many cases in which callus appears abundantly on all sides of the fracture. This failure of callus formation, and the persistence of the fracture gap on the side of the plate, are difficult to explain, since in no instance in which plates have been removed (in simple, uncomplicated fractures) has there been any evidence of actual untoward reaction of the body tissues to the stainless steel foreign body.

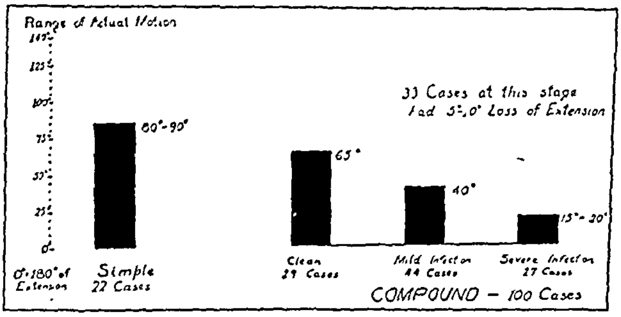

Fig. 5.—Average range of knee motion in fractures of femur nine and a half months from date of injury.

OTHER COMPLICATIONS

Refracture.—Five patients sustained a refracture during convalescence. This reinjury occurred on an average of seven and one-half months from the original accident and roughly about five to six weeks from the beginning of ambulation. The application of the Thomas caliper splint during the early stages of convalescence has been obligatory in the service, but this complication illustrates how ineffectual such a splint may be in injuries occurring in the upper half of the femur. In fact, it may at times act as a lever throwing the point of greatest stress at the fracture site. To increase the efficacy of the splint we have increased the angle of tilt of the ring so that its outer part is above the trochanter. Because of the tendency to angulate and refracture at this high level, a period of suspension with exercise should be carried out for three to four weeks beyond the time when clinical union is apparent.

Renal Lithiasis.—In this series 6 patients have shown clinical evidence of kidney stones, which usually appeared as the patient became ambulatory. Although this incidence seems high, it does not give a true picture of the frequency of urolithiasis in femoral fractures. Russel and Smith[5] of this service command have carried out routine radiographic investigations in 50 consecutive femurs and have found that 8 of these men presented radiographic evidence of renal calculi. The prevalence of this finding during the long period of recumbency needed in the traction suspension treatment suggests that through inadequate fluid intake and gravity stasis there is improper renal drainage, so that particular care should be taken to keep the fluid intake at a high level, to create postural changes and to give abdominal exercises. Repeated urine examinations are indicated in all cases under traction treatment. Widespread use of sulfonamides may play a part, although these stones to date have failed to show any evidence of the drug. Fractures of the long bones of the arms which are ambulatory do not have this complication, suggesting that increased calcium output is not the answer.

Knee Motion.—Considering the fact that, because of military reasons, this series represents a very young age group, the restoration of knee function represents one of the most disheartening problems that we have had to face. The whole problem of knee stiffness is a very complex one and offers a challenge which we have failed to meet. Two factors which are definitely helpful have been, however, the use of resistive exercises and the use of delayed closure.

In this series the average period from the date of injury to the last examination was only nine and one-half months, so that unfortunately the statistics do not tell the complete story of the end results but do describe the slowness in restoration of joint motion. A later review of these cases should be made. Successful delayed closure has brought about much earlier healing and less scarring, so that exercise and activity can be started earlier, leading to better function. An attempt to separate the results of the men treated by internal fixation or by traction showed no appreciable difference. The findings were not entirely conclusive because a number of the patients who had had sepsis or delayed union had too recent splinting. For that reason the groups were classified as noted in figure 5.

In the pathology of knee stiffness many factors are included. There is often a matting of the quadriceps at the site of injury, leading to a checkrein effect. Frequently there has been an acute synovitis with effusion which is followed by secondary matting of the quadriceps pouches, and not infrequently we have noted traumatic degeneration of the articular cartilage of the patella, the so-called chondromalacia. All these pathologic changes lead to a secondary capsular contraction with intra-articular adhesions.

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[5] Russel, Stuart W., and Smith, Louis D.: Personal communication to the authors.

No difference has been noted in the knee motion between cases treated by skeletal traction in the lower end of the femur or in the upper end of the tibia, with the single reservation, however, that femoral pins are at times improperly placed so that it would seem reasonable that the less experienced surgeons should use the tibial site.

An important disability is the limitation of extension of 5 to 10 degrees, which is noted in about one third of the cases. This is usually an active loss of motion but may also be passive. We attribute this finding to the treatment of the knee for a long time in a position of flexion, a position which does not allow the vastus medialis to come into a normal function. In this prolonged position of flexion the intra-articular structures may also become temporarily adherent and produce the passive restriction. This disability can be corrected after several weeks of active exercise, but its presence argues in favor of treatment of fractures above the lower third with the knee in full extension.

PHYSICAL THERAPY

Exercise therapy of the thigh muscles should be started as soon as the wound is healed. Static exercises, such as quadriceps setting, can be done in a Thomas splint suspension or in a plaster spica. These exercises should be repeated throughout the day and should be done with considerable force in order to be efficacious. Remedial exercises should at first be given to correct the atrophy and later to produce agility, coordination and endurance. It is important to separate these two phases and to maintain in one's mind the important principle that exercise therapy must have resistance to produce power and hypertrophy, and repetition of movement to lead to endurance. Application of exercise on this basis has led to the most encouraging results that we have seen. In this command Capt. Thomas DeLorme[6] has applied the paraphernalia of professional weight lifters, consisting of an iron boot with attached bar bells, in order to produce resistive exercises for these femoral fractures. This has led to a remarkable increase in muscle power and in stability of the knee, with a secondary increase in joint motion. This change from the passive to active exercise offers hope for the future, when thigh muscles are seen in the injured side which may at times have a greater circumference than those of the normal thigh. Because of the ability to introduce exercise therapy so much earlier, cases which have had a successful delayed wound closure result in better function.

CONCLUSIONS

1. Early and adequate débridement is the most vital factor in the successful treatment of a compound wound.
2. Modern chemotherapy has not altered this opinion, although the use of bacteriostatic drugs has brought brilliant results in controlling the invasive infection and in reducing the number and severity of complications.
3. The principle of converting an open fracture into a closed one by delayed wound suture is strongly endorsed because it insures, with minimal hazard, rapid healing and little scar formation.
4. Conservatism in removal of large bone fragments is advocated, since it lessens major problems of reconstructive surgery.
5. An analysis of 163 fractures of the femur treated in various theaters of war indicates that extremely gratifying results are being obtained with the conservative treatment of traction in balanced suspension. There has been a low incidence of sepsis and a high percentage of bone union without deformity.
6. The use of early internal fixation in the presence of an open wound is accompanied by greater danger of complication. When indicated, in a few selected cases, internal fixation is safer if performed soon after the healing has been completed following secondary closure. The operation should be performed through a separate longitudinal incision with temporary counter drainage. When the type of fracture permits, multiple screw fixation is superior to the use of plates because of lessened surgical trauma.
7. The early use of active exercise, with carefully supervised resistive exercise during convalescence, offers a hopeful opportunity for the improvement of knee function.

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ABSTRACT OF DISCUSSION

DR. GUY A. CALDWELL, New Orleans: This review by Lieut. Cols. Soto-Hall and Horwitz of the late results obtained in 117 compound fractures of the femur sustained in battle contains several lessons which have been emphasized by research and experience in civil hospitals during the war. It has been shown by the National Research's Council's Subcommittee on Infected Wounds and Burns that major emphasis must be placed on adequate, well timed surgical measures rather than on chemotherapy in the care of compound fractures and that plating of the fracture through an open wound materially increases the danger of serious infection. In civil life the patient may reach the hospital so promptly that definitive operation may be done in less than three hours, and it often is possible to close the wound primarily and without tension. The temptation to use internal fixation under these conditions is great. However, the late results in cases so treated in our service at Charity Hospital in New Orleans over a period of two years have been so discouraging that we have almost abandoned the use of plates and screws in compound fractures. We are finding also that, when tissue damage is great, gross contamination is apparent and closure difficult, it may be the shorter road to early healing to leave the wound open and close or graft it secondarily. Although the total number of fractures occurring each year in America is comparable to those occurring in battle casualties, they are so widely scattered that they cannot be concentrated in a few special centers. The tendency to transport the patient to the nearest hospital regardless of its facilities or its surgeons' ability has always contributed to the poor results. Free choice of a physician by the patient certainly is desirable, but the desirability is predicated on the assumption that all physicians are equally competent to treat every condition or are fully conscious of their limitations and will promptly refer the patient to a competent specialist. Not until every physician learns to recognize and refer serious fractures to competent centers and not until the surgeons in those centers nominate and support the best qualified men to supervise their fracture services will the results of fracture treatment in civil practice approach those realized in this war.

DR. J. ALBERT KEY, St. Louis: This paper again indicates that the Army is obtaining satisfactory results with the traction suspension method of treatment of fractures of the femur which it has adopted as standard. I agree with early débridement and that the wound should be closed *only* when the surgeon can observe the patient until danger of infection has passed. The delayed primary or early secondary closure of the wound and the covering of large wounds by split skin grafts when the skin cannot be closed because of tension are valuable procedures. The skin graft acts as a sterile dressing. From this paper I am not able to determine the relative value of sulfonamides and penicillin or even whether they influenced the incidence and extent of infection. This is because no two cases are alike. Not only do wounds vary, but also the contamination and the resistance of patients vary. Consequently, one should not condemn the use of internal fixation in all compound fractures. It is quite possible that the increased incidence of infection resulted from severe wounds when internal fixation was indicated as a life saving measure. In civilian practice in the hands of competent surgeons, modern internal fixation combined with chemotherapy and adequate external fixation is a relatively safe and effective method of treating selected compound fractures. This series confirms previous knowledge that traction methods of treatment are just as effective in obtaining union as are open reduction and internal fixation. The incidence of refracture seems rather high. This is partly due to the use of the Thomas caliper walking splint in convalescence. This gives a sense of false security and may result in refracture or bowing. The patient should remain in bed after traction is released and exercise his limbs against gravity and resistance until union is solid enough for crutch walking. Conclusions as to stiffness at the knee will be modified later, as this stiffness will lessen with use. The limitation of extension could be lessened by placing skin traction on the lower part of the leg with the knee straight for a short time while the fracture is consolidating and after union has been obtained but before the patient has been got up on crutches. Traction and suspension is not the only method of treating fractures of the femur, and in civilian life the surgeon should use the method which gives the best results in his hands. An example of this is the brilliant results obtained by manipulative reduction and immobilization in a plaster of paris spica cast in the hands of the late Willis Campbell.

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[6] DeLorme, T. L.: Muscle Development of Use of Heavy Resistance Exercise, to be published.

Dr. Ralph Soto-Hall, San Francisco: Dr. Caldwell's remarks emphasize well the parallel progress that has taken place in civilian and military practice through the years of the war. His conclusions relative to chemotherapy, débridement and plating of compound fractures concur with our military experience. Colonel Horwitz and I feel that the great margin of safety resulting from handling cases with secondary closure will not be readily given up in the future in civilian hospitals for the treatment of severely contaminated and badly lacerated wounds. Why close a severe compound wound in a few hours with risk and hazard when it can be done in a few days practically without peril? The Army has made an effort to concentrate its well trained personnel. The treatment of compound fractures by internal fixation has been confined largely to specially selected installations, leading to an extensive experience for the personnel. For this reason our impartial evaluation is significant because, if a greater percentage of infection and nonunion will occur in the hands of experienced men, certainly we must expect a dismal outlook when plating of compound fractures is performed by less qualified surgeons. Dr. Key has suggested that the increased incidence of infection in these cases might have resulted because of more severe wounds. Actually this did not occur in our series because these cases presented no greater severity of wound or complication than those treated by the traction method. Knee motion, as he has suggested, has increased with time, but the progress has been slow, the problem is still unsolved and we must seek new methods of approaching this complication.

Intracerebral Hemorrhage.—Hemorrhages into the substance of the brain in patients with injuries to the head usually develop at the time the blow is sustained and are due to laceration of cortical or subcortical vessels. Rarely the hemorrhage may have its onset several days after the injury. The cause of these so-called "late hemorrhages" is not clear. The differential diagnosis between traumatic subcortical clot and extradural or subdural hematoma cannot be made without operation. Evidence is accumulating that operative removal of the intracortical clot is feasible and is followed by marked improvement in the patient. Delayed onset of hemiplegia may also occur as the result of thrombosis of cerebral vessels consequent on incomplete tearing of their coats.—Merritt, H. Houston; Diagnostic Considerations in Patients with Head Injury, in Trauma of the Central Nervous System. Baltimore. Williams & Wilkins Company, 1945.

MEAT IN THE DIET OF PREGNANT WOMEN

RUTH M. LEVERTON and THELMA J. McMILLAN
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The importance to both mother and child of adequate protein intake during pregnancy has been well established. The medical and nutritional aspects of the problem have been reviewed recently by Williams[1] in The Journal. Numerous and thorough studies of the diets of pregnant women reviewed by him indicate, however, that the protein intake of these women seldom equaled the National Research Council recommendation of 85 Gm. daily and that it was less than 60 Gm. a day in about 50 per cent of the cases.

The purpose of the study being reported was to test the effectiveness of a simple dietary recommendation that could be made to the patient by the physician, whether family doctor or specialist, and which if followed would insure an increased protein intake for the pregnant woman, especially the one with anemia.

The dietary recommendation selected for test was "Eat plenty of meat—have a generous serving at least twice a day." The reason for the choice of this particular recommendation lay in the fact that (1) the quantity and quality of protein of meat make it a superior food source of this dietary essential and therefore the size of servings recommended need not be incompatible with any individual's capacity for food, (2) meat contains a liberal assortment of nutrients other than protein, (3) meat rates high in appetite appeal and consumer acceptability, (4) meat is procured at the food market rather than at the drug counter and (5) there is a widespread misconception that women should not eat much meat, especially during pregnancy.

The women who served as subjects for the study were secured through the cooperation of local obstetricians. All were private patients of adequate economic status, had histories of generally good health and were under 33 years of age; all of them thought they were following their physician's advice "to eat a good diet"; the majority of them were receiving additional vitamin A and D and calcium phosphate.

To insure that the women were receiving "plenty of meat," they were supplied with a 5 ounce serving of lean meat daily (three fourths of the time it was beef). They ate this supplementary meat in addition to their self-chosen diets and at times other than the main meal (which usually included meat). The meat was bought by the laboratory in large quantities, cut into individual servings, wrapped, frozen and stored. Deliveries were made to the women once or twice a week, depending on their home refrigerator storage space.

For each woman thus supplied with meat there were two experimental partners, women of approximately the same age, who had had the same number of children, if any, were at the same stage of pregnancy and whose blood had the same hemoglobin value. One partner received daily a vitamin B complex supplement which furnished in capsule form 2 mg. of thiamine, 1 mg. of riboflavin, 20 mg. of niacin and small amounts of other factors of the complex. The other partner was a negative control and received no supplement.

The supplements of meat and vitamin B complex were begun early in the fifth month of pregnancy and

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This work was supported by a grant from Swift and Company. Obstetricians of Lincoln cooperated by providing patients for this study. Published with the permission of the Director as Paper No. 389, Journal Series, Nebraska Agricultural Experiment Station.

[1] Williams, P. F.: Importance of Adequate Protein Nutrition in Pregnancy, J. A. M. A. 127: 1052 (April 21) 1945.

continued for three months after delivery; the control member of each trio was studied for the same length of time. Each woman kept a record of her food intake for one week during the eighth month of pregnancy, and from this was calculated her protein intake.

The effectiveness of following the "eat meat" recommendation as compared with receiving the B complex supplement and with receiving no supplement was measured by determination of the hemoglobin and red cell content of the blood at monthly intervals. The hemoglobin level was considered a good index to use, because low hemoglobin values during pregnancy have been shown by several workers to be associated with suboptimal protein intakes. A low hemoglobin level warrants attention even though not all cases of anemia in pregnancy present the same blood picture or indicate the same deficiency. Hemoglobin in the venous blood samples was determined by the method of Todd and Sanford and the fully developed oxyhemoglobin read in a Sanford and Sheard photelometer.

More than 75 women, or twenty-five sets of three women each, began as subjects for the study in 1942-1943, but less than half of them completed it. The chief reason for discontinuing a subject was that the women moved away when the husbands were drafted; only a few women had to be discontinued because they were not consistently cooperative or because their families objected to the monthly blood tests.

Results are reported for 33 women, or eleven sets of matched partners. In the table are given the average values for hemoglobin and red cell count for each group at monthly intervals from four months before until three months after delivery. These values are shown graphically in the chart. They were calculated in terms of the percentage of the value at the beginning of the study, i. e. the initial hemoglobin or red cell value for each subject was assigned a value of 100 per cent and every succeeding value was calculated from this base line.

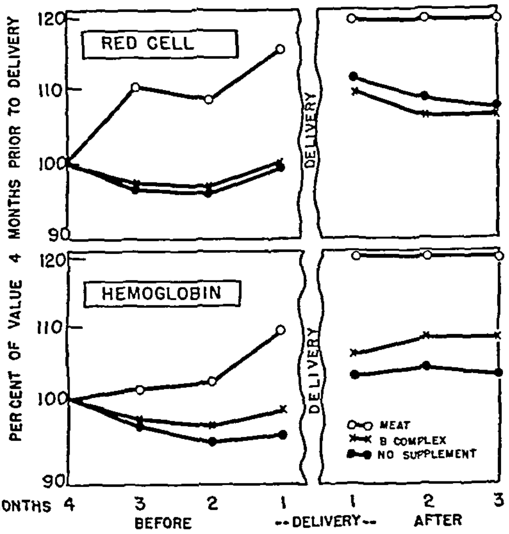
The women who received the additional meat had consistently better hemoglobin and red cell values at all times than did their experimental partners who received either B complex or no supplement. The values for the latter two groups were similar, although the B complex group had a slightly higher hemoglobin level, especially after delivery.

Comparison of Hemoglobin and Red Cell Value of Groups of Women Receiving Meat, B Complex or No Supplement

	Months Before Delivery				Months After Delivery		
Supplement	4	3	2	1	1	2	3
Meat							
Hemoglobin, grams	10.7	10.9	11.1	11.7	12.8	12.8	12.8
Red blood cells, millions	3.8	4.2	4.1	4.4	4.6	4.5	4.5
B complex							
Hemoglobin, grams	10.7	10.5	10.4	10.6	11.4	11.6	11.6
Red blood cells, millions	3.8	3.7	3.7	3.7	4.2	4.0	4.0
None							
Hemoglobin, grams	10.8	10.5	10.3	10.4	11.2	11.3	11.2
Red blood cells, millions	3.7	3.6	3.6	3.7	4.1	4.0	3.9

One month prior to delivery the women who had had extra meat for three months had an average increase in hemoglobin level of 10 per cent and of 16 per cent in red cell count. At the same time the values for the women who received B complex were 99 per cent for hemoglobin and 100 per cent for red cell count and 95 per cent and 100 per cent respectively for the controls. The protein content of the self-chosen diets at this time averaged 58 Gm. daily for each group of subjects. The additional meat contained 25 Gm. daily, bringing the total protein intake to 83 Gm. for the women receiving the meat supplement.

One month after delivery the meat group had an average hemoglobin value 20 per cent higher than when the meat supplementation was begun, as compared with 7 per cent and 4 per cent for the B complex and control groups respectively. The red cell values were 20 per cent higher for the meat group and 10 per cent and 12 per cent higher for the B complex and control groups. The values at the end of three months after delivery were very similar to those at the end of one month.



Comparison of hemoglobin and red cell content of the blood of women receiving meat, B complex, and no supplement during the last four months of pregnancy and for three months following delivery (in terms of the percentage of the initial value).

All of the pregnancies and deliveries were without complications. None of the subjects receiving extra meat experienced edema, whereas 3 of the B complex group and 3 of the controls had slight edema.

The nursing record showed that in six of the eleven sets of women the mother who was eating extra meat was the only one of the trio who was still nursing her infant at the end of three months. Eight of the 11 women who had extra meat nursed their babies for at least two months, 5 of the B complex group and 4 of the controls.

No effort was made to evaluate subjective evidence of any advantages of either supplement. The subjects receiving extra meat who had had previous pregnancies almost invariably volunteered the comment that they "did not feel so tired all the time" as they had during other pregnancies.

SUMMARY AND CONCLUSIONS

Because of the widespread inadequacy of the protein intake of pregnant women it is desirable to find some simple dietary recommendation which if followed would be effective in increasing their protein intake.

The study reported has tested the effectiveness of the recommendation "Eat plenty of meat—a generous serving at least twice a day." Though such a recommendation is definitely uncommon, it has the advantage of being easy to follow as well as furnishing an appreciable amount of several nutrients.

Women whose intake of protein was augmented by receiving a 5 ounce serving of meat daily in addition to their self-chosen diets during the period from four months before delivery until three months after delivery had higher hemoglobin and red cell values, less edema and better success in lactation than women who received a supplement of B complex or women who received no supplement.

The results indicate that the recommendation to normal pregnant women to increase their protein intake by eating a generous serving of meat daily in addition to their self-chosen diets would be effective in increasing hemoglobin and red cell concentration, avoiding edema and promoting lactation.

REEXAMINATION OF VETERANS DISCHARGED BECAUSE OF HEART DISEASE OR HYPERTENSION

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During recent months we have had occasion to reexamine a large number of World War II veterans who had been discharged from the armed services because of diagnoses referable to the cardiovascular system. As this work continued, certain questions presented themselves which prompted us to analyze a consecutive series of such cases. The results of this analysis are recorded as follows:

SOURCE OF MATERIAL

The material used in this study was procured from the medical records and examinations of 500 veterans of World War II who were discharged from service because of disability due to heart disease or hypertension. In every case studied the induction examination report was available. In those cases discharged by the Army the complete hospital charts and other pertinent medical records were available. In the cases discharged from the Navy, either photostatic copies of the medical records or a medical summary was in the case file. All of this information was carefully reviewed by us and found to be extremely valuable in the study.

In addition, each veteran was examined by one or both of us. A careful history was taken, complete physical examination was done and, routinely, chest x-ray, electrocardiogram, blood Wassermann and urinalysis were obtained. Other laboratory work was done when indicated.

Nearly all of these persons came to us for examination as a result of their having applied to the Veterans Administration for compensation because of disability alleged to have been incurred in military service. With few exceptions, these cases were studied in our outpatient department.

GENERAL INFORMATION

The material studied consisted of 500 individuals, physically disqualified for duty because of heart disease or hypertension. Under heart disease we have included neurocirculatory asthenia and other disturbances of a functional character, as well as organic disease.

Only a few of these veterans were sufficiently ill to be hospitalized at the time of examination. For the most part they were in a reasonably good state of health with either mild or no subjective symptoms. There was only one woman among the 500. Fifty-two Negroes were in the group. Nearly all of these veterans had entered service from homes in northern Illinois, most of them from the vicinity of Chicago. The majority had been reared in the same area.

The average age of the entire group at the time of our examination was 29.1 years. The youngest age recorded was 19, and the oldest veteran was 53 years of age. The great majority were in the third decade. In table 1 the average age of the various etiologic groups is recorded.

The average time spent in service, from date of induction to date of discharge for disability, was 12.4 months for the entire group. It is evident (table 1) that there was no great difference in the average time spent in service as far as etiology is concerned. The shortest service, 10.6 months, was found in cases of congenital heart disease. The group with arterial hypertension had the longest period of service, 14.1 months.

The grouping of these cases in table 1, with reference to the type of disease present, is based on the diagnosis made at our examination. In some cases this diagnosis differed with that made at the time of discharge. Since neither the Army nor the Navy consistently followed the nomenclature of the American Heart Association, as we did, some academic revisions in diagnosis were necessary. Those cases in which our opinion differed with the certificate of disability discharge diagnosis will be discussed in detail later.

As would be anticipated in persons of this age group, rheumatic heart disease predominated. Of the 389 persons who had cardiovascular disease, 169 (43.4 per cent) had this type of heart disease. Arterial hypertension was the next most frequent diagnosis made, occurring in 86 (27.5 per cent) of the patients with cardiovascular disease. Other types of heart disease occurred less frequently. Coronary heart disease, however, occurred in a rather large proportion, considering the age of the group. The different etiologic groups will be discussed under their respective headings.

RHEUMATIC HEART DISEASE

There was a total of 169 persons having the rheumatic type of heart disease. The average age was 27 years and the average period of service was 12.7 months. In table 2 there is shown the incidence of the various anatomic lesions. The correlation of these lesions with the history of rheumatic fever and the time of its occurrence in relation to military service are also shown.

There were 6 patients who presented evidence other than valvular lesions on which the diagnosis was based. Five of these had abnormal electrocardiograms, 2 showing intraventricular block. One man had a history and findings indicating that he had the residuals of rheumatic pericarditis. Evidence justified the diagnosis of rheumatic carditis in these patients.

Of the 162 persons found to have valvular heart disease, the mitral valve was involved in 140 (82.6 per cent) and the aortic valve in 69 (40.8 per cent).

The criteria for the diagnosis of mitral insufficiency due to valvulitis are not very clearly defined. However, in this analysis we have adhered to the following requirements: All murmurs were of 2 plus or of greater intensity in accordance with Levine's classification. They were constantly present, tended to be harsh and varied in no significant detail on the usual maneuvers. A definite rheumatic history was required in all cases. When an aortic valvular lesion was present we required the apical murmur to be louder and more

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From the Medical Service, Veterans [illegible] Hines, Ill.

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harsh in quality than in the case of mitral valve involvement alone. We did not consider mitral insufficiency associated with mitral stenosis of sufficient clinical significance to warrant analysis.

There were 60 instances of organic mitral insufficiency without associated stenosis. In 15 of these there was associated disease of the aortic valve. In 45 (31.50 per cent) veterans there was isolated mitral insufficiency. This is approximately the same incidence as that found in selectees disqualified because of heart disease.[1] Schlesinger[2] reported a similar incidence in a follow-up on children who had suffered from rheumatic fever. All of these veterans on examination were in good health, showing no evidence of active rheumatic fever or of cardiac symptoms. The routine x-ray study of the chest revealed evidence of cardiac enlargement in 18 (30 per cent) of the 45 cases. The electrocardiogram was abnormal in 17 (28.3 per cent) cases. In 3 there was arrhythmia, 3 showed conduction defects and in 11 there was a suggestive degree of axis deviation.

TABLE 1.—*Etiologic Classification of 500 Cases*

Correlation of Average Age and Time in Service, with Etiology

	Type of Heart Disease							Hyper-tension Arterial	No Cardio-vascular Disease	Total
	Rheumatic	Hyper-tensive	Coronary	Congen-ital	Miscel-laneous	Unde-termined	Functional			
Number of cases	169 33.8%	21 4.2%	33 6.6%	7 1.4%	3 0.06%	46 9.2%	24 4.8%	86 17.2%	111 22.2%	500 100%
Average age, years	27	33	40.7	25	40	29.1	27.5	30.6	27.7	29.1
Average number of months in service	12.7	13.0	13.3	10.6	12.5	11.9	12.4	14.1	10.9	12.4

Mitral stenosis was present in 80 of the 169 veterans who had rheumatic heart disease, an incidence of 47.3 per cent. In 48 (29.6 per cent) the mitral valve alone was involved, while in 32 (19.7 per cent) mitral stenosis was associated with aortic valve disease. Among those patients in whom only the mitral valve was involved, the x-ray of the chest revealed an abnormal cardiac shadow in 18. The electrocardiogram was abnormal in 23 of the patients. Auricular fibrillation was present in 1, conduction defects in 7, right axis deviation in 9 and nonspecific abnormalities in 6.

The aortic valve was involved alone in 22 (13 per cent) of the cases. Aortic insufficiency was present in all, while in 1 case there was also stenosis of the valve. The electrocardiogram was abnormal in 8 of these 22 cases. There was abnormal left axis deviation in 4, conduction defects in 2 and nonspecific abnormalities in 2. The chest x-ray showed cardiac enlargement in 5 of the 22 cases.

Combined involvement of the aortic and mitral valves was present in 47 (27.8 per cent) of the cases. Aortic valve disease was combined with mitral stenosis 32 times and with mitral insufficiency 15 times. Aortic insufficiency was present in all, while aortic stenosis was present in 6 of those with mitral stenosis and in 1 with mitral insufficiency. Cardiac enlargement was present on x-ray examination in 28 of the 47 cases. The electrocardiograms were abnormal in 15 cases. Abnormal axis deviation was found in 10, conduction defect in 1 and nonspecific changes in 4.

The information relative to the rheumatic history of this group is of particular interest. Of the 169 cases there were 138 (80.4 per cent) in which there was a definite history of rheumatic fever. The average age at which the first attack occurred was 17 years. We were greatly aided in obtaining a history of rheumatic fever by the medical records which had been accumulated during service. In many instances the past medical history had been recorded in detail on several occasions, thereby revealing evidence of past rheumatic fever which would have been otherwise undisclosed.

The significance of the time of occurrence of the rheumatic fever as related to the period of military service is obviously important. Table 2 shows those who gave a history of rheumatic fever before entering service, those who had the initial attack while in service and those who gave a history of rheumatic fever both before and during service. Of the 169 veterans who had rheumatic heart disease, 86 (50.3 per cent) had had rheumatic fever before entering military service. The number of attacks had varied from one to ten in these people. Physicians had informed some that they had heart disease. In 40 of these men there was a recurrence of acute rheumatic fever during service. There were 52 (30.7 per cent) veterans who denied a history of rheumatic fever prior to that which occurred in service. There were 31 (18.3 per cent) who gave no definite history of rheumatic fever at any time. All of the latter group showed evidence of either stenotic valve lesions or aortic insufficiency. We did not classify apical systolic murmurs, in the absence of a rheumatic history, as rheumatic heart disease.

TABLE 2.—*Rheumatic Heart Disease*

Type of Cardiac Lesion Correlated with Rheumatic History as Related to Period of Military Service

Basis of Diagnosis Cardiac Lesion	Number of Cases	Rheumatic History			
		Before Service	In Service	Before and In Service	Negative
Valvular					
[illegible]	45	11	20	14	0
[illegible]	48	19	9	10	10
ciency	1	1	0	0	0
[illegible]	21	8	5	1	7
lesions	47	7	12	11	14
Nonvalvular					
Rheumatic myocarditis	3	0	2	1	0
Rheumatic intraventricular block	3	0	3	0	0
Rheumatic pericarditis	1	0	1	0	0
Total	169	46	52	40	31

If attention is confined to the 138 persons who had rheumatic fever, certain important facts are evident. The initial attack of rheumatic fever occurred prior to service in 86 cases (62.3 per cent). In 40 (46.5 per cent) of these there was a recurrence during military

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1. Markson, D. E., and Gethner, M. P.: Analysis of Cardiac Abnormalities in 460 Selectees, Illinois M. J. 82: 350-354 (Nov.) 1942.
2. Schlesinger, B. E.: Public Health Aspects of Heart Disease in Childhood, Lancet 1: 593-594 (March 12), 649-654 (March 19) 1938.

service. It is likewise evident that of the 92 veterans who had rheumatic fever in service 40 (43.4 per cent) had suffered attacks prior to entering service.

Evidence indicates that there is a high rate of recurrence during military service among those who have had rheumatic fever. Holbrook and van Ravenswaay[3] recently reported that in a study of rheumatic fever occurring among Air Corps troops there was a previous history of rheumatic fever in 34 per cent of the patients. Wright[4] noted a history of previous rheumatic fever in 18 of 28 soldiers suffering from the disease. These figures indicate a recurrence rate higher than that reported by Wilson and Lubschez[5] for the civilian population. Massell and Jones[6] estimate that about 2 per cent of young persons of military age have had rheumatic fever. On this basis one could predict that nearly 1 per cent of all inductees might develop a recurrence of rheumatic fever in service unless such persons were eliminated because of the rheumatic history.

It is obvious that rheumatic heart disease was the major cause for disability among the 500 veterans. It is likewise apparent that in spite of careful examination a considerable number of men were inducted into service who had rheumatic valvular disease. Bland, Jones and White[7] have shown that clinical evidence of mitral stenosis rarely develops in less than three years after the onset of rheumatic fever. Aortic stenosis probably develops even more slowly. It seems reasonable to conclude that all of these veterans who had stenotic valvular lesions on discharge had definite valvular disease on induction. Delaney and his associates[8] have commented on the discovery of chronic valvular disease among air cadets who had passed from two to twelve physical examinations. It is apparent that greater care must be taken in the examination of inductees if rheumatic valvular disease is not to be overlooked.

HYPERTENSIVE HEART DISEASE

There were 21 cases classified under the heading of hypertensive heart disease. The criteria for the diagnosis was based on x-ray evidence of cardiac enlargement with hypertension or a definite history of hypertension. There was no evidence of valvular disease or any other factor to which cardiac enlargement could be attributed. As noted in table 1, the average age of this group was 33 years, six years older than the rheumatic group. The average time spent in military service was thirteen months, almost the same amount of time spent by those with rheumatic heart disease. As a whole the group was in an excellent state of compensation. Only 1 had had symptoms of early left ventricular failure while in service. At the time of our examination none of the group showed evidence of heart failure. The only abnormal physical finding was evidence of cardiac enlargement by x-ray in all cases. The electrocardiogram was abnormal in 8 patients. Six of these showed evidence of left ventricular strain, 1 delayed auriculoventricular conduction, and 1 showed an undetermined type of intraventricular block. The blood pressure was abnormally elevated in all of these persons at the time of our examination.

The records of these patients were carefully reviewed for evidence of cardiovascular disease at the time of, or prior to, induction. A history of hypertension prior to entry into service was obtained in 12 (57.1 per cent) of the group. No blood pressure was recorded at the time of induction in 2 (1 had been taking digitalis for some time). In the remaining 10 the blood pressure was normal in 2 (under 140/85) and "borderline" (under 150/90) in 8. There were 9 veterans who gave no history of hypertension prior to service. In 5 of these no induction blood pressure was recorded. In the remaining 4 the blood pressure was borderline in 3 and normal in 1. Among the 21 veterans a blood pressure under 140/85 was recorded on induction in only 3, no blood pressure was recorded in 7, and borderline blood pressure was noted in 11 of the group. We realize that the upper level of normal blood pressure used is somewhat more restrictive than that designated by Mobilization Standards (150/90).

The certificate of disability discharge diagnosis was arterial hypertension in 16 of these cases, hypertensive heart disease in 2, aortitis in 1 (Wassermann reaction negative), hypertension with aortic insufficiency in 1 and myocardial fibrosis in 1.

CORONARY HEART DISEASE

There were 33 veterans discharged because of coronary disease. The average age of this group was 40.7 years, which is considerably higher than that of the other etiologic groups. The youngest veteran, who was 25, had typical effort angina with definite electrocardiographic changes after exercise. There were 2 patients who suffered acute myocardial infarction at the age of 30. Acute myocardial infarction occurred in 6 patients under 35 years of age. The average time spent in service was 13.3 months.

The clinical manifestations were as follows: There were 21 patients who suffered classic acute myocardial infarction in service. Of these 21 cases only 4 gave a history indicating heart disease prior to service. Two had had typical effort angina of mild degree. One veteran gave a history of acute anterior infarction in 1940; however, he had withheld this information at the time of induction. The other veteran had given a suggestive anginal history, and an induction electrocardiogram showed a definite Q_3 and inverted T_3. This, apparently, was not considered significant and the man was inducted. The remaining 17 men had no history suggesting heart disease. A review of the electrocardiograms, taken at the time of the acute episode in service, showed the location of the infarcts to be anterior in 8, posterior in 12 and unclassified in 1. At the time of our examination the electrocardiograms still showed residuals of infarction in 16, intraventricular block in 1, and in 4 the tracing had returned to normal. The x-ray examination of the chest revealed enlargement of the heart in 6 and arteriosclerotic plaques in the aorta in 1. The remaining 14 were normal.

There were 10 persons who manifested angina pectoris without evidence of infarction. On close questioning, 3 of these men admitted the existence of the symptoms prior to service. There was abnormality of the electrocardiogram in 4 cases, and the x-ray of the heart showed enlargement in 3 of these patients.

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[3] Holbrook, W O, and van Ravenswaay, A C. The Military Aspects of Acute Rheumatic Fever, Mil Surgeon **96:** 388 391, 1945

[4] Wright, I S: Cardiovascular Highlights of the War, Bull Chicago Heart A **23:** 1 8, 1945

[5] Wilson, May G, and Lubschez, Rose Recurrence in Rheumatic Fever, J. A M A **126:** 477 480 (Oct 21) 1944

[6] Massell, B. F, and Jones, T D Some Practical Aspects of the Rheumatic Fever Problem Which Have an Important Bearing in Military Medicine, Am Heart J **27:** 575 587 (April) 1944

[7] Bland, E. F; White, P D, and Jones, T D Development of Mitral Stenosis in Young People, Am Heart J. **10:** 995 1004 (Dec) 1935.

[8] Delaney, J. H; Miller, S. J.; Kimbro, R W, and Bishop, L F.: Valvular Heart Disease Previously Unrecognized in Military Service, J. A M A **123:** 884 886 (Dec 4) 1943

The remaining 2 veterans were diagnosed as having coronary heart disease on the basis of having abnormal electrocardiograms and being in the fifth decade of life. They stated that there were no symptoms, and all findings were otherwise normal.

As judged by this series of cases, it seems that the elimination of such persons at the time of induction is very difficult. Only 7 of the 33 gave a history indicating heart disease. The examiner is dependent on the accuracy of the history given, and more careful attento this point might have eliminated a few. Electrocardiograms would have given evidence in some of these men.

CONGENITAL CARDIOVASCULAR DISEASE

There were only 7 of these 500 veterans who had congenital cardiovascular disease. This is an incidence of only 1.4 per cent, which is much lower than that found in inductees. In the examination of inductees Levy, Stroud and White[9] found 4.4 per cent, while Wilburne and Ciccolini[10] found 12.2 per cent had congenital cardiovascular lesions. Porter[11] found an incidence of congenital heart disease of only 1.6 per cent among patients with all types of cardiovascular disease in a large army hospital, which is approximately the same as the 1.4 per cent noted in this series. A comparison of these figures would indicate that nearly all congenital heart disease is eliminated at the time of the induction examination. The fact that nearly all congenital heart lesions are associated with loud murmurs probably accounts for this fact.

The congenital lesions found among these 7 persons were as follows: Three had coarctation of the aorta, 2 had patent ductus arteriosus, 1 had a right aortic arch and 1 had severe congenital deformity of the chest leading to pulmonary hypertension and cor pulmonale. The average age was 25 years and they spent an average of 10.6 months in service. Two of the patients with coarctation of the aorta had a history of hypertension, and 1 patient with a patent ductus arteriosus knew he had a heart murmur before entering military service. The patient with congenital deformity of the chest had had a low effort tolerance all of his life, and this had become much more apparent during service. At the time of our examination he had increased venous pressure and was obviously quite disabled.

These results would indicate that few people with congenital cardiovascular disease are inducted into military service and that it is an unimportant cause of disability discharge.

HEART DISEASE OF MISCELLANEOUS ETIOLOGY

Three persons are grouped here because the small number does not justify separate classifications. Two of them were discharged because of myocarditis: 1 following diphtheria, and the other one associated with bacteremia. In both instances the electrocardiograms were abnormal and we concurred in the diagnosis of infectious myocarditis. There was 1 patient with cardiovascular syphilis. This man had symptoms of coronary insufficiency with x-ray evidence of aortic dilatation and an abnormal electrocardiogram. He gave a history of a penile lesion in 1927 with some antisyphilitic therapy. The blood Kahn reaction was positive.

HEART DISEASE OF UNDETERMINED ETIOLOGY

Among the 500 veterans studied there were 46 instances in which the heart was found to be abnormal but no definite etiologic factor could be established. The past medical history disclosed no cause, and the physical findings and laboratory work disclosed nothing of a specific character which would indicate the etiology. The average age of the group was 29.1 years. The average time spent in service for this group of veterans was 11.9 months. These cases can well be divided in accordance with the type of abnormality which served as the principal basis for a diagnosis of heart disease.

There were 21 individuals who presented systolic murmurs of such a character as to be considered abnormal. All of these murmurs were so located as to indicate that they were of mitral origin and of 3 plus or greater intensity. They were constantly present, irrespective of position, respiration or exercise, and continued through all or the greater part of systole. Some were harsh in quality, while others were soft and blowing. In most instances the murmur was the only abnormal cardiovascular finding. There was one abnormal electrocardiogram showing a prolonged PR interval, and in 4 cases the x-rays of the chest indicated slight cardiac enlargement. At no time had there been any significant cardiac symptoms in any of these veterans. Seven of the 21 had knowledge of the presence of a murmur before entering service. Two of these had been previously rejected because of this physical finding.

It seems that some authors who studied persons of a similar age group have classified such cases under rheumatic heart disease. The discharge diagnosis in all of these cases was chronic valvular heart disease. While it is reasonable to assume that rheumatic valvulitis is a common cause for such murmurs, our experience has not led us to believe that we can determine the physical condition of the mitral valve with any great assurance from the interpretation of a systolic murmur alone. A similar experience was reported by Rednick.[12] In a series of cases studied at postmortem he was unable to find any anatomic explanation for 22 per cent of the systolic murmurs heard during life. In the absence of any history of rheumatic fever or other concrete evidence of causation we have conservatively classified these murmurs as of undetermined etiology. A good many were undoubtedly rheumatic in origin, while some were possibly functional in character. It was obvious that these men had been discharged because of the abnormal auscultatory finding rather than because of physical disability.

There were 19 in whom the diagnosis of heart disease was primarily based on an abnormal electrocardiogram. In 8 there existed bundle branch block, one being of the short PR interval type. In 2 there was a prolonged PR interval of 0.25 second. In the remaining 9 there were T wave abnormalities of nonspecific type. Cardiac enlargement by x-ray was present in only 1 of these veterans. In 7 of these 19 cases there existed, prior to service, a history of symptoms or medical opinion which was strongly indicative of heart disease. It seems that coronary disease was probably present in some, while rheumatic involvement may have been present in others; however, a definite etiology could not be established.

The principal manifestation in 4 of this group was paroxysmal attacks of tachycardia. Two had episodes of auricular fibrillation, 1 had paroxysmal ventricular tachycardia and 1 had episodes of frequently recurring multifocal premature ventricular beats. The 2 patients who manifested paroxysmal auricular fibrillation had enlargement of the heart by x-ray examination. Only 1 gave a history of cardiac symptoms prior to service, having had episodes of auricular fibrillation.

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[9] Levy, R. L.; Stroud, W. D., and White, P. D.: Report of Reexamination of 4,994 Men Disqualified for General Military Service Because of a Diagnosis of Cardiovascular Defects, J. A. M. A. **123**: 937-944 (Dec. 11), 1029-1035 (Dec. 18) 1943.

[10] Wilburne, Morris, and Ciccolini, E. M.: Heart Disease in Selective Service Examinees, Am. J. M. Sc. **207**: 204-208 (Feb.) 1944.

[11] Porter, R. R.: Cardiovascular Experiences in an Army General Hospital, Am. Heart J. **27**: 559-564 (April) 1944.

[12] Rednick, M. S.: Pathological Study of the *Significance of Systolic Murmurs*, Ann. Int. Med. **16**: 1197-1205 (June) 1942.

Two were found to have unexplained cardiac enlargement. One had been discharged with the diagnosis of hypertensive heart disease, but there were no abnormal blood pressure recordings in the record or at our examination. The other had a certificate of disability discharge diagnosis of neurocirculatory asthenia.

FUNCTIONAL HEART DISEASE

Under the heading of functional heart disease we have grouped those cases which had some type of cardiac disturbance which was considered not organic in nature, including neurocirculatory asthenia. There were 24 veterans (4.8 per cent) of the entire series who presented such disorders. The average age of these men was 27.5 years, and the average time spent in service was 12.4 months.

There were 12 men who had cardiac arrhythmias. In 7 the arrhythmia was paroxysmal auricular tachycardia. There were 3 with paroxysmal auricular fibrillation and 2 with ventricular premature contractions. In all of these cases the diagnosis had been sustained by electrocardiograms taken during the time the arrhythmia was present. Six of these veterans gave a clear history of the occurrence of the arrhythmia prior to service. There were no other abnormal cardiovascular findings in any of these cases and there were no symptoms other than those resulting from the disturbed rhythm.

The diagnosis of neurocirculatory asthenia was made in only 12 of 500 cases, an incidence of 2.4 per cent, which is surprisingly low. However, the incidence of this condition found in inductees rejected for heart disease has been comparatively low. It was noted in 4.9 per cent of 4,994 rejectees by one group of examiners,[9] and in 1 per cent of another series of rejectees.[10] Of the 12 persons, 9 had been discharged because of neurocirculatory asthenia. The remaining 3 had been discharged with a diagnosis of organic heart disease which we did not find present. Seven of these 12 persons gave a history of similar symptoms prior to service.

ARTERIAL HYPERTENSION

There were 86 veterans who were found to have hypertension. This comprised 17.2 per cent of the 500 cases. The average age of the group was 30.6 years at the time of our examination, with an average of 14.1 months spent in military service. This is the longest average period of service of any of the groups.

Hypertension was considered to begin at a systolic pressure over 150 mm. of mercury or a diastolic pressure over 90 mm. of mercury. We classified systolic pressures between 140 and 150 and diastolic between 85 and 90 as "borderline."

As might be expected, the degree of hypertension found in these veterans was either mild or moderate. Only 1 patient had a blood pressure over 200 systolic and 110 diastolic. In the majority the systolic pressure ranged between 150 and 165 and the diastolic between 90 and 105 mm. of mercury.

While some of these men came to the attention of the medical officers because of routine physical examinations or while under treatment for an unrelated condition, a surprising number reported to sick call because of symptoms. There were 58 who consulted the doctors because of feeling ill, and hypertension was thus discovered. The most frequent symptoms complained of were headache, palpitation, fatigue and nervousness; less frequently precordial distress was a complaint. These subjective complaints were more generally present in this group of veterans than is usually noted in civilians with a similar degree of hypertension. It hardly seems probable that the hypertension was the direct cause of the symptoms but more likely that the psychologic makeup of these persons rendered them less adaptable to military service. Psychic conflicts, and anxiety resulting therefrom, might well cause such symptoms.

The discharge diagnosis was arterial hypertension in all but 5 of these persons. One had been discharged for rheumatic myocarditis and 1 for valvular heart disease. The diagnosis in both cases was presumably based on an apical systolic murmur, since there was no history of rheumatic fever in either case. There were 3 who were given a certificate of disability discharge on neurocirculatory asthenia.

With reference to evidence of hypertension prior to service, there were 36 (41.8 per cent) who gave a history of hypertension. In 14 of these no blood pressure was recorded on the induction examination. The blood pressure was "borderline" in 16 and below 140/85 in 6. Among the 50 men who had no history of hypertension the blood pressure was not recorded on induction in 23, it was "borderline" in 11 and it was under 140/85 in 16.

The high incidence of a previous history of hypertension in Navy men who were found to have high blood pressure has been commented on by Master.[13] Traum and Wilcox [14] found that 44 per cent of a small number of men discharged for hypertension gave a previous history of this condition. This corresponds well to the 41.8 per cent noted in this series. It is apparent that the past history of hypertension and the induction blood pressure deserve serious attention when judged by these persons discharged for hypertension.

CHANGES IN DIAGNOSIS RESULTING FROM REEXAMINATION

Reexamination of these 500 veterans led us to differ, in a considerable number, with the diagnosis on which disability discharge had been based. In table 3 we have indicated how the cases under the various certificate of disability discharge diagnoses were reclassified at the time of reexamination. It is apparent that in some veterans having heart disease there was a difference of opinion as to the type of disease present. Such disagreement is largely academic from the point of view of fitness for military service and is of little concern.

The most important difference of opinion was in a group of 111 cases in which we were unable to confirm the diagnosis of cardiovascular disease. For discussion, these cases can be grouped in accordance with the certificate of disability discharge diagnosis so that certain facts may be better emphasized.

The most common unconfirmed certificate of disability discharge diagnosis was that of valvular heart disease. Forty of the 111 veterans were discharged with this diagnosis. Twenty-six of these had suffered from acute rheumatic fever in service and were discharged shortly thereafter. On reexamination we found that 23 of these men had faint (1 plus) apical systolic murmurs and 3 had no abnormal findings. In 14 of these 40 veterans there was no history of any etiologic factor. Systolic murmurs were present in all. In 3 men they were of 2 plus intensity, and in 11 the murmur was of less than 2 plus intensity. X-ray and electrocardiographic studies were normal in all of the 40 cases. All were in good health and had no cardiac symptoms.

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[13] Master, A. M.: *Hypertension in the Navy*, Bull. New York Acad Med. **19**: 704-712 (Oct.) 1943.

[14] Traum, A. H., and Wilcox, B. B.: *An Analysis of 150 Cases of Cardiovascular Disease in World War II Veterans*, Mil. Surgeon **95**: 5 10 (July) 1944.

At the time of our examination we did not believe that there was sufficient evidence to sustain a definite diagnosis of heart disease. Those with a rheumatic history were considered as "possible" rheumatic heart disease, and the diagnosis was recorded as "systolic murmur with history of rheumatic fever." The murmurs noted in the 14 without a history of rheumatic fever were classified as physiologic and not indicative of heart disease.

It seems that several factors may have played a part in this change of diagnosis. The use of the diagnosis of "valvular heart disease," while it implies anatomic changes, does not place the examiner under such strict responsibility for determining the etiology or character of these changes as does the nomenclature of the American Heart Association. Since we followed that nomenclature, it is probable that some inconsistency resulted because of the difference in terminology used.

There was also evidence that the character of the systolic murmur had actually changed, in the interval since discharge, in some of the persons who had had acute rheumatic fever during service. A comparison of the description of the murmurs at the time of discharge with our findings indicated that the murmurs had decreased in intensity or had even disappeared in some cases. How often this occurred we cannot be certain, since the relative intensity of the murmurs had not been described in all patients. It is a well recognized fact that relatively loud systolic murmurs occurring during the course of rheumatic fever may later show appreciable regression or disappear.[15] Since, on the average, reexamination took place nearly a year after discharge, this was probably not an uncommon cause for change in diagnosis.

Furthermore, Holbrook and van Ravenswaay[3] recently indicated that there has been a considerable change in the policy of the Air Corps toward rheumatic fever and slight or questionable evidence of rheumatic heart disease. They report that separation from service has dropped from 85 per cent to 25 per cent. It is probable that a similar change of policy was reflected throughout the armed forces. Since these men were discharged during the early months of the war, when the attitude toward rheumatic fever or any suggestion of rheumatic heart disease was quite intolerant, it is likely that diagnosis and disposition were considerably influenced by this prevailing attitude.

Reports in the literature concerning the follow-up of similar cases indicate that a comparatively small percentage of these persons will eventually develop definite rheumatic valvular disease. Boone and Levine,[16] in a ten year follow-up, found that only 4.8 per cent developed valvular heart disease, while Ash,[17] in a similar study of children, reported that only 18 per cent developed valvular disease. These findings justify the conservative diagnosis made in this group of cases at this time. Interval examinations in the future will be necessary to determine the outcome in each case.

There were 8 veterans who suffered acute rheumatic fever in service, during which time they developed definitely abnormal electrocardiograms. They were discharged because of rheumatic carditis. At reexamination the electrocardiograms were all normal. Four had 1 plus apical systolic murmurs. All 8 cases were classified as "possible" rheumatic heart disease. Improvement in the clinical findings was clearly the reason for lack of conformity with the certificate of disability discharge diagnosis.

Neurocirculatory asthenia was the second most frequently unsustained discharge diagnosis. Forty-two of the 500 veterans were separated from service on the basis of this disability. At the time of reexamination the diagnosis was sustained in 9 of these men, 4 others were found to have organic cardiovascular disease, and 1 was classified as having paroxysmal auricular tachycardia. In the remaining 28 veterans we were unable to sustain the diagnosis of cardiovascular disease. Two factors would seem to be responsible for this disagreement in diagnosis.

A difference in diagnostic criteria was the cause in some cases. Though much has been written concerning this entity, the criteria for diagnosis are still rather

TABLE 3.—*Comparison of Certificate of Disability Discharge Diagnosis with Diagnosis Made on Reexamination*

C. D. D. Diagnosis

Diagnosis on Reexamination	Valvular Heart Disease	Neurocirculatory Asthenia	Arterial Hypertension	Congenital Heart Disease	Heart Disease, Unstated Etiology	Arrhythmia	Coronary Heart Disease	Hypertensive Heart Disease	Aortitis	Rheumatic Carditis	Total
Rheumatic heart disease...	169	..	...	..	..	..	..	..	..	..	169
Hypertensive heart disease	...	..	18	..	1	..	..	1	1	..	21
Coronary heart disease....	...	..	...	..	2	..	31	..	..	..	33
Congenital heart disease..	2	..	..	5	..	..	..	..	..	..	7
Miscellaneous heart disease	...	..	...	..	3	..	..	..	..	..	3
Undetermined etiology.....	21	1	1	..	19	4	..	..	..	..	46
Functional heart disease..	...	1* 9†	...	..	1†	11	2†	..	..	..	12* 12† 24
Arterial hypertension.....	2	3	81	..	..	..	..	..	..	..	86
No cardiovascular disease.	40	28	26	1	4	3	1	..	..	8	111
Total	234	42	126	6	30	18	34	1	1	8	500

* Arrhythmias. † Neurocirculatory asthenia.

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[15] Keith, J. D.: Prognosis in Rheumatic Heart Disease, Canad. M. A. J. **45**: 119-127 (Aug.) 1941. Brown, M. G., and Wolff, Louis: Recovery from Acute Rheumatic Fever Without Permanent Cardiac Damage, New England J. Med. **223**: 242-243 (Aug. 15) 1940. Ash.[17]

[16] Boone, J. A., and Levine, S. A.: Prognosis in Potential Rheumatic Heart Disease and Rheumatic Mitral Insufficiency, Am. J. M. Sc. **195**: 764-770 (June) 1938.

[17] Ash, Rachel: Cardiac Signs in Rheumatic Infection of Childhood, Am. J. Dis. Child. **63**: 1-14 (Jan.) 1942.

indefinite. There are those who will establish the diagnosis almost entirely on subjective complaints; others require definite objective evidence of neurocirculatory instability such as erratic heart rate, unstable blood pressure, sweating, unusual flushing or pallor, and tremor. We agree with the latter criteria for diagnosis. Those people who had only subjective complaints were thought to be undistinguishable from the "neurosis" and so were referred to the psychiatrist for diagnosis. This difference in point of view was responsible for failure to sustain a diagnosis of neurocirculatory asthenia in a few cases.

The more important factor responsible for our failure to concur in the diagnosis was a change in the symptoms and physical findings of the veteran from those described at the time of discharge. It is generally agreed that an inherent predisposition plus environmental factors are necessary to precipitate the neurocirculatory asthenia syndrome. Military service during time of war furnishes the most ideal environment. However, if such an individual is discharged and returns to a familiar civilian environment, free from anxiety and military responsibility, it is reasonable to presume that symptoms and signs may recede so that the syndrome becomes clinically latent. This apparently occurred in most of these 28 veterans. At the time of reexamination there was not sufficient evidence on which a diagnosis could be based.

As judged by this series of cases it would appear that neurocirculatory asthenia is a much less frequent cause for separation from service in this war than it was during World War I. McCrudden and White[18] reported an incidence of 45 per cent, and Lewis[19] noted an even higher incidence during the war. These figures are extremely high when compared with the separation incidence of 8.4 per cent in this series. It seems likely, however, that many such cases are being classified under neuropsychiatric diagnoses, such as "battle fatigue," "anxiety states" or neurasthenia, during the present war. We are in agreement with a policy of diverting the diagnostic terminology away from the cardiovascular system.

There were 26 veterans who were discharged because of arterial hypertension whose blood pressure was under 150/90 mm. of mercury at the time of our examination. Seven of these gave a history of abnormal blood pressure before entering service. A review of the induction examinations showed the blood pressure recorded under 140/85 in 9, "borderline," under 150/90, in 7, and no blood pressure recorded in 10. As would be expected, the blood pressure readings recorded during service revealed only mild elevation. A diastolic pressure of 100 or over was recorded in only 10 cases. The highest systolic pressure recorded was 176 and the highest diastolic pressure was 112. Many cases showed wide fluctuations in pressure from normal to abnormal. Only 13 of the group had symptoms at the time of discharge. These symptoms were headache, nervousness, palpitation and breathlessness. One patient had been troubled by epistaxis. All were in good health at the time of reexamination and only a few had mild symptoms, as already recorded.

Blood pressure has been found to present a very difficult problem in determining physical fitness for military service. The difficulty is largely due to the frequency of the so-called "nervous hypertension" among young persons and the inadequate means of differentiating it from true essential hypertension. While essential hypertension usually begins with a period of fluctuating blood pressure, the incidence of the development of true hypertension during the next few years in people of this age group is probably very small. Levy and his associates[20] found an occurrence rate of 2.5 per thousand persons years under observation for army officers of approximately this same average age who had manifested transient hypertension. This figure gives support to those who believe that the attitude toward induction blood pressure should be rather liberal. However, this same liberal view will need to be adopted by both Army and Navy if frequent discharges for transient arterial hypertension are to be avoided.

A study of the records and the course of the blood pressure in these cases would indicate that for the most part they may be classed as "nervous hypertension." It is likely that military environment caused sufficient psychic stress to give rise to transient elevation in blood pressure. The symptoms complained of were strikingly similar to neurocirculatory asthenia. The similarity extended further in that return to civilian life relieved that psychic stress to such an extent that the blood pressure returned to normal.

Three patients discharged because of cardiac arrhythmia were placed in this group. Neither the medical records nor our findings revealed sufficient evidence of disturbed rhythm to classify the cases as abnormal.

There were 6 patients who were discharged because of organic disease in whom our examination revealed nothing abnormal. A review of the medical records did not reveal, in our opinion, sufficient basis for the diagnosis made at time of discharge. In only these 6 cases was there entire disagreement with the clinical findings and the certificate of disability discharge diagnosis.

Even though the certificate of disability discharge diagnosis of cardiovascular disease was unconfirmed in 111 of the 500 cases, it is important to note that an improvement in the condition of the patients made a change of diagnosis necessary in many cases. In the remainder of the cases there was little disagreement with clinical findings recorded at the time of discharge. Changes in diagnosis in these cases resulted from a difference in criteria used in clinical classification. In only a few cases was there complete clinical disagreement.

SUMMARY

A careful analysis of the records of 500 veterans discharged because of heart disease or hypertension has been made. Obviously the necessity of discharging persons from military service because of disability a year after induction involves a great loss of both time and money with regard to military training. In addition, the federal government is obligated to a future responsibility which is of no small concern. Any information which might prevent such incidents is therefore of great value.

Rheumatic heart disease was by far the most common type of cardiovascular disease noted among these veterans. A definite history of rheumatic fever prior to entrance into military service was present in 50.3 per cent of these cases. In 52 cases definite stenotic valve lesions were discovered two years or less following induction. Among those giving a negative history for rheumatic fever we know the valvular disease was not acquired during service, and therefore it must be concluded that it existed prior to induction. The tendency for rheumatic fever to recur during military service is also confirmed.

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[18] White, P. D.: The Soldier and His Heart, War Med. **1:** 158-167 (Feb.) 1941.

[19] Lewis, Thomas: The Soldier's Heart and the Effort Syndrome, ed. 2, London, Shaw & Sons, 1940.

[20] Levy, R. L.; Hillman, C. C.; Stroud, W. D., and White, P. D.: Transient Hypertension, J. A. M. A. **126:** 829-833 (Nov. 25) 1944.

Arterial hypertension was the second most common cause of cardiovascular disease. Twenty-one of these persons were found to have hypertensive heart disease, and in 86 the hypertension was uncomplicated. There was a history of hypertension prior to induction in 44.8 per cent of all cases. It was recorded above 140/85 "borderline" in 35.5 per cent and under 140/85 in 23.3 per cent.

Coronary heart disease was relatively frequent considering the average age of the veterans. Approximately 4 per cent of all discharges were due to acute myocardial infarction.

Congenital and syphilitic cardiovascular diseases were rarely noted and were unimportant as a cause of disability discharge.

Difference of opinion regarding the significance of systolic murmurs proved to be the most common cause for a change in diagnosis. Some inconsistency was noted in that murmurs of a type usually considered acceptable for induction sometimes served as a basis for certificate of disability discharge disposition. This supports the policy of the Philadelphia board,[21] which was rejecting inductees with systolic murmurs not thought to be organic, considering the possibility of subsequent discharge on the basis of these murmurs.

In this series of cases neurocirculatory asthenia was a much less frequent cause for discharge than it was during World War I. This may be due to the fact that these patients are being classified under neuropsychiatric diagnoses.

There was a definite tendency for the signs of neurocirculatory asthenia and hypertension to disappear following return to civilian environment. This indicates that poor psychologic adjustment to military life was responsible for transient clinical manifestations.

The certificate of disability discharge diagnosis of cardiovascular disease was unconfirmed in 111 of the 500 cases. This was due, in the majority of instances, either to a change in the physical condition of the veteran or to a difference in the criteria and terminology used in classification.

A review of the medical records of these veterans disclosed that in approximately 40 per cent there was a history of an etiologic factor, symptoms referable to the heart or of abnormal physical findings which antedated their entry into service. More time devoted to the careful questioning of inductees with regard to these factors might have suggested the presence of cardiovascular disease. The routine referral of persons who had suggestive histories to physicians especially trained in cardiovascular diseases would have undoubtedly uncovered evidence of disease in many. We realize that some persons will withhold such facts, while others may fabricate information. However, it seems the additional time and expense required would have been insignificant compared to the time that has been lost and the expense the public will bear during the coming years.

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[21] Stroud, W. D.: Report of the Philadelphia Board, Am. Heart J. **27**: 454-492 (April) 1944.

ISOSPORA HOMINIS INFECTION IN MAN

COMMANDER ARTHUR A. HUMPHREY (MC), U.S.N.R.

Isospora hominis infection in man, sometimes termed human coccidiosis, is a rare and poorly understood disease, the pathogenicity of the organism even being open to some question. Despite the recognition of some 240 cases, the bulk of them occurring in World War I in the Mediterranean area, it has been possible to study very few from the clinical standpoint. Magath[1] in 1935, three years after he observed the first case in the United States, reviewed the literature thoroughly and photomicrographs reprinted from this paper in a readily available textbook[2] form an excellent basis for the recognition of the parasite.

The oocysts which are found in the stools are probably ingested as such in food and drink, and since closely allied coccidia are found in many animals these creatures doubtless serve as a reservoir. The ovoid, glassy cysts measure 18 to 33 microns in length and 12 to 16 in breadth. The capsule may be doubly refractile, although in certain of the organisms it appears as a single layered translucent shell, which may become distorted or wrinkled on standing or in fixed slide preparations. The poles of the ovoid may be smoothly rounded, or one may be bluntly rounded. In some instances the shell appears as if it had been bilaterally pinched near the polar ends. The rounded mass of granular protoplasm in the center is usually single when the stool is fresh and tends to fill the beam of the boatlike capsule, although if ovoid it has a long axis parallel with that of the cyst. Shortly after passage this divides into two sporoblasts, although this may readily occur even by the time the specimen is examined. On further standing the sporoblasts will increase to four or eight and the granular appearance will be replaced by vermiform, rodlike structures.

While there are no accurate data to substantiate it, the oocyst is described as invading the epithelial cells covering the mucosa of the small bowel. A small bottle-shaped abscess follows this penetration, and schizogony and sporogony are suspected of taking place with the formation of new oocysts, which are poured into the lumen of the bowel. These apparently lack invasive power, as the disease is briefly self limited, all symptoms ceasing spontaneously within a few days to a few weeks.

Many of the reported cases have been asymptomatic or have been associated with some concomitant disorder, such as ulcerative colitis,[3] and the symptoms could not be properly evaluated. Laboratory infection of an accidental nature has occurred in 1 reported instance,[4] which was followed by a mild diarrhea after an interval of six days and continued for five weeks until halted by treatment. While this case was more protracted than the usual one, which lasts only a few

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The photomicrograph is presented through the courtesy of Lieut. (jg) H. A. *Down (HC), U.S.N.R.*

This article has been released for publication by the Division of Publications of the Bureau of Medicine and Surgery of the U. S. Navy. The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department.

[1] Magath, T. B.: Coccidia of Man, Am. J. Trop. Med. **15**: 91-129 (March) 1935.

[2] Todd, J. C., and Sanford, A. H.: Clinical Diagnosis by Laboratory Methods, ed. 10, Philadelphia, W. B. Saunders Company, 1943, p. 524.

[3] Kiskaddon, R. M., and Renshaw, R. J. F.: Human Coccidiosis, J. A. M. A. **128**: 731 (July 7) 1945.

[4] Connal (1922), quoted by Strong, R. P.: Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, ed. 6, Philadelphia, Blakiston Company, 1942, vol. 1, pp. 456-458.

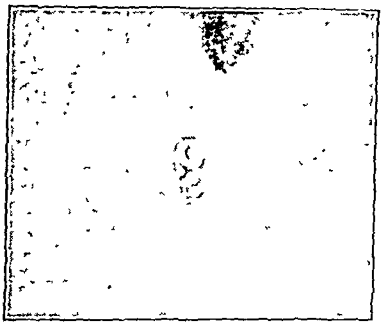
days to a week or two, it has assisted in estimating the incubation period. Other symptoms that have been reported are abdominal discomfort, flatulence, weight loss and lassitude.

The stools are usually described as being light in color, fatty and with an excess of undigested material. The isospora may be easily overlooked; because of their cellophane-like translucency they have been reported as remaining in the stool for only a few days, while other authors have continued to observe them for a month or more. A blood eosinophilia as high as 38 per cent has been recorded.[5]

These case reports are presented as it is felt that they add clinical support to the probable pathogenicity of the isospora when found in some individuals.

REPORT OF CASES

Case 1.—A soldier aged 28 entered the hospital on July 1, 1945 complaining of discomfort in the right upper quadrant and intolerance to certain foods. These symptoms had been intermittently present since the fall of 1944, when he had severe pain in this area and a stone was removed and a cholecystectomy performed. The next serious attack occurred on June 22, 1945 while he was on Okinawa. The patient had no diarrhea but had suffered from constipation. He was afebrile, and further physical examination was essentially negative except for tenderness in the old operative site.



Appearance of Isospora hominis in case 2, illustrating division into two sporoblasts.

On entry the leukocytes numbered 8,500, of which 7 per cent (600 per cubic millimeter) were eosinophils. The gallbladder did not visualize with the dye, and the other x-ray studies of the gastrointestinal tract were negative. A gastric analysis was within normal limits. On July 10 the leukocytes numbered 14,800, with 6 per cent eosinophils (888 per cubic millimeter). Abdominal discomfort was still present. Stools examined on this date and on July 15 were normal but on July 16 Isospora hominis was found in small numbers in two successive stools. The patient at this time had just completed a course of tetrachlorethylene and caprokol directed against his unexplained eosinophilia. It was felt that some of the symptoms were due to postoperative adhesions. A few parasites were still present at the time of his evacuation on July 31, and further follow-up was not possible.

Case 2.—A marine aged 31 entered the hospital on July 21, 1945, following his evacuation from Okinawa, with the diagnosis of acute myositis. A month before he had been forced to leap from a cliff to escape fire and injured his back, he was unable to move because of pain for some time and he also developed a urinary retention for five days. There were no x-ray findings. Improvement had been steady but slow, the pain in the lumbosacral area being persistent. He had arrived on Guam from the United States in the first week in April 1945 and was sent to Okinawa on the last of the month. The bulk of the men in his unit suffered from a brief diarrhea during the last week in May, but, while the others were affected for only a day or two, in his case the stools were frequent and watery for three weeks. In the first few days of the illness he vomited and had a mild fever (101 F.) with excessive perspiration. He did not observe any blood in the stools. He was confined to a field hospital part of this time, and some improvement followed the use of paregoric and a bismuth preparation. Army units obtained rectal cultures from his unit at the time of the outbreak without apparent result. A week or two prior to this episode they had killed and cooked a native goat, and although they ate some captured rations in addition to their own, all were tinned. The water supply came in part from a native spring, but halazone tablets had been added in such numbers that it was unpalatable. Following his arrival at this hospital he complained of a dull, gnawing pain in his abdomen, constipation and an unusual amount of flatus.

Physical examination was essentially negative except for evidence of weight loss and tenderness and spasm over the sacrolumbar area. He was afebrile during his hospital stay.

A leukocyte count of 7,900 on July 31 revealed 15 per cent eosinophils, the remainder of the differential count being essentially normal. A stool specimen examined on August 2 contained a number of Isospora hominis organisms and the stools continued to be heavily laden with them until his discharge to duty on August 7.

Case 3.—A Marine aged 19 entered the hospital on July 3, 1945 with the diagnosis of paroxysmal tachycardia. In the past eight months he had experienced six typical attacks with characteristic symptoms and findings. In the interval he had had no complaint.

During his thirty-one months of overseas duty he had been in Samoa, the Hawaiian, Solomon and Marshall groups and lastly in Okinawa, from which he returned to Guam on July 13. One week after he arrived, on July 20, there was a sudden onset of a watery diarrhea and he felt feverish, although he did not turn into the sick bay. After three days of diarrhea it abated for a day following paregoric and then returned for two days. He did not observe any blood in the watery stools and felt only a mild malaise. Since that time he had had no gastrointestinal symptoms. No other man in his unit was affected at the time.

Physical examination was negative. The urine contained 5 leukocytes per high power field. X-ray examination of the heart and chest was negative. An electrocardiographic tracing demonstrated a sinus tachycardia with no permanent changes. On August 4 he had a hemoglobin of 85 per cent and a leukocyte count of 10,900. The differential count was segmented cells 54 per cent, lymphocytes 19 per cent, monocytes 15 per cent, and eosinophils 12 per cent (1,308 per cubic millimeter). On August 8 Isospora was found in numbers and this was repeated on the 9th. On August 11 a careful search failed to reveal any parasites. On August 15, the last day on which it was possible to follow the patient, a few parasites were still present.

COMMENT

If the salient symptoms of Isospora infection are diarrhea and abdominal pain or discomfort, 2 of the 3 cases show the former and all the latter symptoms. In the first case, however, the occurrence of abdominal discomfort as a manifestation of this infection must be viewed with caution, since his difficulty may be due to some residual affair following his cholecystectomy of the previous year. The fact remains, however, that his only recent severe episode occurred shortly after his arrival on Okinawa. Diarrhea is also a common symptom in the Western Pacific area, but it ordinarily affects a number of men in the same unit simultaneously. The third patient was the only one affected, and in case 2 the diarrhea continued for three weeks and was in no way similar to the transient illness affecting the others of his command. It is conceivable that, if the degree of severity is due to a quantitative effect, he merely might have ingested more oocysts than the others.

The diarrhea in the 2 cases so affected was described as watery, and blood was not present. One lasted five days and the other three weeks. The stools when examined in this hospital were normal except for the presence of Isospora, which was found in all of the cases repeatedly, and apparently for the first time. In 1 case they appeared intermittently. The longest period in which they were continuously found was fifteen days, at the end of which time the patient was discharged.

Taking a commonly accepted figure of 400 eosinophils per cubic millimeter as a significant level, all of the cases showed an eosinophilia without other cause. In the 3 this varied from 7 per cent, with an absolute count of 600 cells, to 15 per cent, or 1,300 cells per cubic millimeter. It must be pointed out, however, that idiopathic eosinophilia, or so-called tropical eosinophilia, is common in the lower lattitudes and could have been present prior to the invasion of the parasites.

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[5] Manson-Bahr, P.: The Dysenteric Disorders, Baltimore, Williams and Wilkins Company, 1943, pp. 267-268.

One patient, and perhaps another, had a fever early in the course of the disease. Two complained of a previously described symptom, flatulence. Leukocytosis was present in but 1 case and that was not present on arrival; it is considered that they were seen too late in the disease for any conclusion on this score.

It is of interest that the 3 patients had been on southern Okinawa within the same period of a few weeks, and, while they did not belong to the same unit, troop movements might have carried them in the same areas. Water was described as being well chlorinated, but it is questionable what degree of chlorination is required to destroy this parasite. Native vegetables might also have been a source of infection, as warnings as to their potential danger often went unheeded.

The Isospora parasites isolated from these patients failed to take any staining procedure, although following fixation by Schaudinn's fluid they were well delineated as light, glassy, ovoids against a dark hematoxylin stained background. Such preparations deteriorated in a few weeks. Dichromate or formaldehyde suspensions of the stool will keep for some time.

SUMMARY

Three cases of Isospora hominis infection in man have been studied in which no other intestinal parasite, or infection, was present to cloud the clinical picture. Abdominal discomfort was the symptom common to all, while a self-limited diarrhea occurred in 2 of the 3 cases.

The infection is apparently associated with a moderate, but definite, eosinophilia, which in the absence of other causative factors may support the contention that Isospora is pathogenic.

From the peregrinations of these patients, certain facts have been brought out in regard to the incubation period; it may be longer than previously suspected, or ten to twenty days. Oocysts were observed for as long a period as fifteen days during hospitalization and nine weeks after the onset of the illness.

Concussion of the Spinal Cord.—Grossly, in a few instances the spinal cord immediately, or a few days after the blow, may be swollen at the level of the injury and possibly at one or two segments below or above the main lesion. The dura and pia-arachnoid are usually intact unless the dura is pierced, in which case they may show slight tears, be edematous and distended and contain slightly blood-tinged fluid. On sectioning, the cord may appear normal or show edema and small scattered hemorrhages. Thrombi and stasis in the blood vessels have been described. In severe cases of spinal concussion the outlines of the gray matter may disappear, and the cut surface has a pulp-like softened appearance. These pulp-like, necrotic areas, as in this instance, may occur at other regions than the impacted area. Cylindrical cavities of one to two millimeters in diameter or even larger may be noted. These occur mostly in the dorsal horns or in the posterior columns near the gray matter. These cavities may extend longitudinally upward and downward for two or three segments. They may be visible to the naked eye and are filled with grayish or brownish gelatinous material and may contain blood serum, histiocytes, compound granular corpuscles and less frequently red blood cells.—Davison, Charles: Pathology of the Spinal Cord as a Result of Trauma, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

Clinical Notes, Suggestions and New Instruments

BRAIN ABSCESS ASSOCIATED WITH CONGENITAL HEART DISEASE

Report of a Case with Complete Recovery

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and
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St. Louis

The association of brain abscess with congenital heart disease has not been emphasized sufficiently in the medical literature. Robbins[1] in a recent comprehensive report collected from the literature 23 cases of brain abscess associated with congenital heart disease and added 3 cases of his own. These 3 cases of brain abscess, all associated with the tetralogy of Fallot, were found when Robbins reviewed 58 cases of congenital heart disease in a series of 7,880 consecutive autopsies. Of the 26 cases described, it is noteworthy that in only 3 instances was the diagnosis of brain abscess established ante mortem and surgical intervention attempted.[2]

The present case is reported to call attention to the association of brain abscess with congenital heart disease and to point out that surgical intervention along with supportive medical care may effect a complete cure in some cases.

REPORT OF CASE

J. H., a white girl aged 9 years, was admitted to St. Louis Children's Hospital on Aug. 21, 1944 with the chief complaints of headache, vomiting and loss of weight for four weeks. Approximately six weeks before admission the patient had suffered a chill while attending the theater. At that time she felt feverish but was not especially ill. After twenty-four hours she seemed completely recovered. There were no adverse symptoms until two weeks later, when she began to have recurrent headache accompanied by vomiting. These headaches were severe and localized for the most part in the frontal area just above the left eye. The attacks of headache lasted for about five hours and were associated with severe intractable vomiting. She complained of weakness and went to bed of her own volition. The intermittent headaches and attacks of vomiting continued, and the child lost weight steadily. There were no further chills, but the parents noted low grade fever and gradual loss of strength.

She was admitted to another hospital for observation. The important findings there were as follows: X-ray examination of the skull revealed increased intracranial pressure. Examination of the eyegrounds showed congestion of veins but no definite papilledema. There was questionable lid lag on the left. An electrocardiogram taken at that time was interpreted as revealing sinus arrhythmia, normal conduction time, variable T waves and rotation of the electrical axis about 180 degrees from normal. X-rays of the sinuses were normal, and x-ray of the chest showed the lung fields clear. The mediastinum, heart and great vessels were thought to be within normal limits. The white blood cell count was 14,500. Blood culture was sterile. While in the hospital, the patient continued to vomit and required parenteral feeding. At this time the total weight loss since the onset of illness was estimated at 10½ pounds (4.7 Kg.), approximately one fifth of the body weight. She was transferred to St. Louis Children's Hospital for further study.

The family history was noncontributory, except that two years previously the father had had an amebic abscess of the liver, which was treated successfully. The past history was

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From the Departments of Neurosurgery and Pediatrics, Washington University School of Medicine, and the St. Louis Children's Hospital.

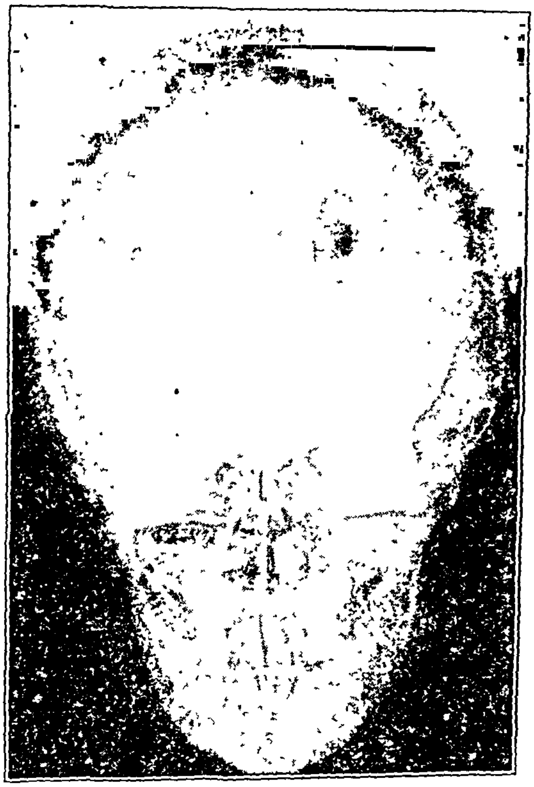
Dr. Smolik is now a member of the Department of Surgery, Section of Neurosurgery, St. Louis University School of Medicine.

[1] Robbins, S. L.: Brain Abscess Associated with Congenital Heart Disease, Arch. Int. Med. **75**: 279 (May) 1945.

[2] Ingham, D. W.: Paradoxical Embolism, Am. J. M. Sc. **196**: 201 (Aug.) 1938. Wechsler, I. S., and Kaplan, Abraham: Cerebral Abscess (Paradoxic) Accompanying Congenital Heart Disease, Arch. Int. Med. **66**: 1282 (Dec.) 1940.

significant in that a diagnosis of congenital heart disease had been made at 2 months of age. The physician called attention to a loud murmur heard over the precardium. According to the parents, however, the patient had never suffered from "heart trouble" and was never cyanotic. She had had the usual childhood diseases: pertussis at 5, measles at 7, chickenpox at 8. An appendectomy had been performed at 5 years.

On admission to St. Louis Children's Hospital, the patient was alert and cooperative. She complained of headache in the frontal area. She was extremely malnourished. There was no cyanosis and no clubbing of the fingers or toes. The significant findings were as follows: No definite enlargement of the heart was noted; a loud systolic murmur was audible over the precardium, with maximal intensity to the left of the sternum in the second intercostal space. There was no palpable thrill. Fluoroscopy showed widening of the superior mediastinum, with considerable pulmonic bulge. X-ray examination of the chest for heart size revealed the cardiac silhouette within normal limits, although there was some prominence in the region of the pulmonary artery. The hilus shadows and lung markings were not unusual. The ears, nose and throat, lungs and abdomen were within normal limits. Neurologic findings included an equivocal Macewen's sign, questionable left sixth nerve weakness and suggestive Babinski on the right. There was no disturbance in the superficial and deep reflexes. There was no ankle clonus. Funduscopic examination revealed prominent and tortuous veins and early choking of the optic disk on the left. There were no field defects and no nystagmus. Urinalysis was negative; hemoglobin was 14 Gm.; the white blood cell count was 11,800, with 1 stab cell, 59 segmented, 29 lymphocytes and 11 monocytes. Tuberculin and Kline tests were negative. Blood cultures were consistently sterile. Blood pressure ranged between 100 and 110 systolic, 68 to 75 diastolic. During the first three days of hospitalization the temperature was normal but the pulse rate was definitely slow, ranging between 54 and 80 per minute. The patient continued to complain of headache, and vomiting without nausea persisted. On the third hospital day she seemed more drowsy than usual. Despite hypertonic glucose, the drowsiness continued. Quite suddenly on the evening of this day the patient had respiratory difficulty with apnea. The pulse was poor and the skin became ashen gray. She obviously presented a problem of overwhelming increased intracranial pressure. Emergency measures gave only transient relief. Since her general condition was poor and there were no positive signs of localization, ventricular drainage was chosen as the best method to afford maximal relief from the intracranial tension with the least demand on the patient's meager reserves. Accordingly, at 10 p. m. on August 24, under local anesthesia, posterior perforator openings were made over each lateral ventricle. A catheter was introduced into the right lateral ventricle, from which fluid under great pressure was obtained. The patient improved almost immediately, becoming more alert and responsive; the pulse, respiration and color showed improvement.



Ventriculogram, anteroposterior view, Aug 25, 1944, showing displacement of ventricular system to right of midline

Ten hours after the emergency ventricular drainage, ventriculography was performed. A lesion of the left frontal lobe was outlined, as shown in the accompanying illustration. Under local anesthesia a perforator opening was made over the left frontal area. The dura was opened. The dural edges and the exposed cortex were coagulated. An aspiration needle was introduced into the substance of the frontal lobe. No capsule resistance was encountered, but 110 cc. of thick gelatinous pus was aspirated. Sulfanilamide was sprinkled over the cortex, and the wound was closed in layers with silk.

Pus taken from the abscess cavity was studied carefully. Direct smear of this pus showed numerous polymorphonuclear leukocytes and mononuclear leukocytes, but no bacteria were seen. No amebas were noted. The material was cultured on blood agar, aerobically and under reduced oxygen tension, in two separate routine laboratories. In addition, in the Research Laboratory of St. Louis Children's Hospital some of this material was cultured on the chorioallantoic membrane of the developing hen's egg.[3] There was no evidence of bacterial growth on blood agar, but within forty-eight hours a heavy growth of Hemophilus influenzae was noted in the egg. This organism was subcultured with ease from the egg to blood agar. Morphology, staining reaction and cultural characteristics identified the organism as a member of the Hemophilus influenzae group. Numerous typings from the egg and from the blood agar subculture failed to reveal a capsule with A and with B rabbit serum Likewise, a capsular stain failed to show the presence of a capsule. Even after mouse passage, no capsule developed.

In view of the infectious nature of the central nervous system lesion, the patient was given penicillin[3a] 20,000 units at once and 10,000 units subcutaneously every three hours. Sulfanilamide was given, 0.3 Gm. per kilogram of body weight in twenty-four hours. Since fluid intake was restricted during this critical postoperative period, sulfanilamide was used as a temporary measure. After twenty hours, when the fluid intake was more adequate, the chemotherapy was changed to sodium sulfadiazine and later to sodium sulfamerazine. During the period of waiting for encapsulation of the abscess, the patient improved steadily. The wound healed by primary intention On September 11, seventeen days after the initial tapping of the abscess cavity, the patient became increasingly more irritable and drowsy. Headache and vomiting increased in intensity and frequency. The eyegrounds remained essentially the same, and the only suggestive localizing neurologic sign was right facial paresis. These signs suggested that the abscess had refilled.

In order to rule out the possibility of multiple abscesses, ventriculography was performed a second time. The same left frontal deformity was outlined. Accordingly, under local anesthesia the previous perforator opening was enlarged with rongeurs. The dura was sealed off carefully with electrocoagulation. When a ventricle needle was directed gently into the cortex, a firm resistance of the capsule was encountered. The cortex was coagulated and excised with loop cautery down to the capsule. The cortex was dissected away from the capsule with cottonoid. The capsule was incised, and about 180 cc. of pus was aspirated. The capsule was marsupialized to the scalp with chromic sutures and iodoform packs were placed loosely into the depths of the cavity. Sulfanilamide was sprinkled into the wound, and a loose dressing was applied. The patient withstood the procedure satisfactorily.

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[3] Blattner, R. J.; Heys, Florence M., and Hartmann, A. F.: Advantages of Egg Culture Technic in Infectious Diseases, Arch. Path 36:262 (Sept.) 1943.

[3a] Penicillin was used in conjunction with sulfonamide therapy, since in a case of meningitis a nonencapsulated strain of Hemophilus influenzae was shown to be penicillin sensitive.

On direct smear of the pus obtained, no bacteria were seen. Specimens were sent as before to two separate laboratories, one of which reported the growth on blood agar of a nonhemolytic streptococcus, considered a probable contaminant. The other laboratory reported sparse growth on blood agar of an organism morphologically similar to that isolated previously on the chorioallantoic membrane.

Dressings were changed every two days. The packs were shortened and withdrawn. The capsule gradually extruded itself. Occasional tendency to herniation was controlled with lumbar punctures. The wound closed in gradually and was fully healed at the time of discharge on November 10, two months following the final opening and evacuation of the abscess.

August 25 to October 19, sulfonamide therapy was continued; drug levels ranging from 15 to 22 mg. per hundred cubic centimeters were maintained. In addition, penicillin therapy was given subcutaneously, 10,000 units every two hours from August 25 to September 27.

During the entire postoperative period, the patient showed rapid and steady improvement. She was discharged from the hospital on Nov. 10, 1944, in excellent condition with no evidence of physical, mental or emotional impairment.

COMMENT

A survey of the literature reveals that premortem diagnosis of brain abscess in patients with congenital heart disease is uncommon. However, if brain abscess were considered more generally whenever signs and symptoms of central nervous system involvement develop in a patient with congenital heart disease, the diagnosis would probably be made more frequently. Once the diagnosis of brain abscess is considered, air injection, particularly ventriculography, is of considerable value in establishing the existence and location of the space-occupying lesion. The surgical management of brain abscess must rest with the case in hand and the individual neurosurgeon. In this instance, aspiration followed by surgical drainage was utilized to good advantage. This conservative management seemed necessary in view of the critical condition of the patient. Sulfonamide and penicillin therapy were of great value in controlling the spread of infection. The organism cultured from pus obtained from the abscess was identified as a nonencapsulated influenza bacillus. It is of interest that no organisms were seen on direct smear of the pus obtained on initial aspiration of the abscess and that all cultures of this material except those on the chorioallantois were reported as "sterile." The occurrence of so-called "sterile" pus from brain abscess is not unusual. The fertile egg technic affords a useful method for supplementing the ordinary bacteriologic cultural methods.

In this case the only suggestion of a previous infection which may have etiologic relation with the development of the brain abscess occurred six weeks prior to admission, when the patient had sudden chill and fever. The symptoms abated within twenty-four hours, and no definite diagnosis as to the nature of the infection was made. Two weeks later symptoms referable to the central nervous system were noted. At the time of admission to St. Louis Children's Hospital there was no evidence of infection elsewhere in the body to suggest the site of the primary focus. The pathogenesis in this instance remained obscure, as is often the case with brain abscess. Various theories as to pathogenesis of brain abscess have been suggested. A comprehensive review is included in a recent article by Collis.[4] Frequent attention has been drawn to the presence of sepsis in the lesser circulation, which, by direct passage to the central nervous system, explains the development of brain abscess. The absence of pulmonary infection would seem to make this explanation less likely in the present case.

Diagnosis as to type of congenital heart lesion lay between atypical patent ductus arteriosus and patent interventricular septal defect. While the exact nature of the lesion could not be determined definitely, it was apparent that an arteriovenous shunt existed. The existence of such a congenital heart lesion with arteriovenous shunt suggests a possible mode of pathogenesis. The congenital cardiac lesion presents a possible mechanical arrangement, in view of the mixing of arterial and venous blood and the short-circuiting of the pulmonary bed filter, leading to so-called "paradoxic" embolism. Batson[5] has suggested another conception for the explanation of "paradoxic" embolism. He has drawn attention to the vertebral system of valveless veins which have rich anastomoses with the caval, portal and pulmonary systems. By injection experiments, Batson showed that retrograde embolism to the brain and cranium can occur when intra-abdominal and intrathoracic pressure relationships are modified. According to this view, a brain abscess might result from "paradoxic" embolism even in the absence of congenital heart lesion.

SUMMARY

Symptoms of central nervous system involvement in a patient with a congenital heart lesion suggested the diagnosis of brain abscess. The clinical impression was verified by ventriculography, and surgical treatment was instituted successfully. The organism cultured from aspirated pus was identified as a member of the Hemophilus influenzae group. Sulfonamide and penicillin therapy were regarded as important adjuncts to surgical intervention. The patient has made a complete recovery and is entirely symptom free one year after operation. She shows no personality change and no alteration of mental level.

500 South Kingshighway, St. Louis 10.

Council on Foods and Nutrition

ACCEPTED FOODS

The following additional foods have been accepted as conforming to the Rules of the Council on Foods and Nutrition of the American Medical Association for admission to Accepted Foods.

George K. Anderson, M.D., *Secretary.*

FOODS FOR SPECIAL DIETETIC PURPOSES (See Accepted Foods, 1939, p. 295).

Sunway Fruit Products, Chicago.

Sunway Beverage Base—Orange, Lemon and Lime flavors. Each fruit flavored beverage base contains varying proportions of Powdered Orange Juice Product,* Powdered Lemon Juice Product,* orange oil, lime oil, lemon oil, tricalcium phosphate, F. D. & Co. Dye, anhydrous citric acid, vitamin C, vitamin B_1.

Analysis (submitted by manufacturer).—Ash 1.5%, moisture 2.1%, acidity as citric acid 19% (equivalent to 1.009 liters of normal hydrochloric acid), carbohydrate 78.7%, protein 0.6%, fat 0.183%.

Calories.—1,020 Gm. per 12 ounce can.

Vitamins:

Vitamin B_1	0.065 Gm. per 12 ounce can
Vitamin C	7.700 Gm. per 12 ounce can

When the beverage is reconstituted according to the directions on the can, each 8 ounce serving of finished drink contains:

Calories	116.32 mg.
Vitamin B_1	1.0 mg.
Vitamin C	120.0 mg.

* The Orange and Lemon Powder Products used are those of the Borden Company and are composed of dehydrated citrus juice and powdered corn syrup.

PREPARATIONS USED IN THE FEEDING OF INFANTS (*See* Accepted Foods, 1939, p. 156).

Campbell Soup Company, Camden, N. J.

Campbell's Strained Vegetable Baby Soup, contains tomatoes, carrots, sweet potatoes, white potatoes, peas, onions, oatmeal, okra, celery, salt and water.

Analysis (submitted by manufacturer).—Total solids 13.4%, protein 1.95%, fat 0.5%, carbohydrate by difference 9.3%, crude fiber 0.43%, calcium 0.024%, phosphorus 0.051%, iron 0.73 mg. per hundred grams, copper 0.24 mg. per hundred grams, manganese 0.018 mg. per hundred grams.

Calories.—14 per ounce.

Vitamins.—

Vitamin A	2,550 I. U. per hundred grams
Thiamine	0.069 mg. per hundred grams
Riboflavin	0.064 mg. per hundred grams
Ascorbic acid	7.5 mg. per hundred grams
Niacin	1.05 mg. per hundred grams

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[4] Collis, J. L.: The Etiology of Cerebral Abscess as a Complication of Thoracic Disease, J. Thoracic Surg. **13:** 445 (Nov.) 1944.

[5] Batson, O. V.: The Function of the Vertebral Veins and Their Role in the Spread of Metastases, Ann. Surg. **112:** 138 (July) 1940.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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Cable Address : : . . "Medic, Chicago"

Subscription price : : : : : Eight dollars per annum in advance

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SATURDAY, JANUARY 19, 1946

DEATHS OF PHYSICIANS IN 1945

The obituaries of 2,962 physicians were published in The Journal during 1945. The American Medical Directory Report Service recorded 3,815 deaths in the United States, possessions and temporary foreign, or 853 more than were published in The Journal. In addition approximately 200 notices of deaths had been received but not yet published, giving a total of 4,015 deaths for an overall consideration. The present analysis, however, is concerned only with the 2,962 deaths published.

Under the accelerated program up to June 30, one class of 5,136 students was graduated in medical schools in the United States in 1945. Deducting the 4,015 deaths, an estimated net increase to the profession of 1,121 is noted. Overlapping totals are recorded, since deaths in years other than 1945 are included in this analysis for the current year. Increases in the profession due to the accelerated medical school program are not reflected in these figures, since it was in the year 1944 that most medical schools graduated two classes.

Age.—The average age at death was 65.3 in 1945 as compared with a similar age in 1944. Sixty-nine physicians died between the ages of 25 and 29, 88 between 30 and 34, 66 between 35 and 39, 101 between 40 and 44, 117 between 45 and 49, 168 between 50 and 54, 245 between 55 and 59, 330 between 60 and 64, 464 between 65 and 69, 494 between 70 and 74, 390 between 75 and 79, 246 between 80 and 84, 139 between 85 and 89, 31 between 90 and 94, 11 between 95 and 99 and 3 aged 100 or over.

Causes.—Heart disease continues to lead the causes of death among physicians. As is customary in compiling these statistics, primary causes and contributory factors were included. Coronary thrombosis and occlusion accounted for 655; 246 occurred in the ages between 60 and 69. Diseases of the myocardium and pericardium accounted for 146 deaths, angina pectoris and other coronary diseases 121, chronic heart valvular disease and rheumatic heart disease 21, subacute bacterial endocarditis (except rheumatic fever) 11 and other diseases of the heart 330. Cerebral hemorrhage, thrombosis and embolism were responsible for 335 deaths, arteriosclerosis for 150 and cardiovascular diseases for 76. Cancer and tumors accounted for 296, 151 of which were classified under cancer of the gastrointestinal tract. One hundred and forty-five deaths were attributed to pneumonia, of which 4 were atypical or virus pneumonia. Asthma caused 13 and bronchitis and pleurisy 6 deaths. Chronic nephritis and uremia accounted for 114 and acute nephritis for 15. Diseases of the circulatory system caused 66 deaths, diabetes 44, Hodgkin's disease and leukemia 26, pernicious anemia 12 and other diseases of the blood 7, diseases of the gastrointestinal tract 29, cirrhosis of the liver 20 and other diseases of the liver 6, tuberculosis 19, diseases of the respiratory system 30, peptic ulcer (ulcer of the stomach and duodenum) 18, peritonitis 11, influenza 6, pulmonary embolism and thrombosis 12 and other embolism and thrombosis 22, diseases of the genitourinary tract 10, aneurysm 10, diseases of the gallbladder, bile duct and cholecystitis 14, diseases of the nervous system 23, mental disease and diseases of the brain 4 each, diseases of the prostate 27, asthma 13, chronic arthritis 8, appendicitis, encephalitis and meningitis 5 each, diseases of the bones and organs of locomotion and osteomyelitis 4, diseases of the thyroid and alcoholism 3 each, abscess and other infectious diseases 2, bacteria, septicemia and pyemia 2, hernia 1, syphilis 1 and diseases of the spinal cord 1. There were 29 deaths following operation. One death each was attributed to epidemic hepatitis, "constitutional shock due to hapamine," Addison's disease, pellagra, typhus, undulant fever, mushroom poisoning and typhoid. Senility was returned as the cause of death in 34 instances, while the cause of death was ill defined in 7.

Suicides and Homicides.—Of the 25 suicides recorded 11 deaths were the result of bullet wounds, 3 of a cut artery and 3 of drugs. One death each was attributed to carbon monoxide, gas, hanging, jumping, drowning, alcoholism, barbiturate intoxication and leaping in front of a train. The method was not obtained in 1 suicide. Shooting was the method used in the 2 homicides reported,

Accidental Deaths.—Of the 87 accidental deaths, automobiles were involved in 33, 1 of which was caused by an automobile and train crash. Of the unusual accidents 1 physician died of burns received when his clothing became ignited from a cigar that he had been smoking when he fell asleep, 1 died in a hunting accident when his gun went off as he was handing it to a fallen companion, 1 of accidental phenobarbital poisoning, 1 of fractured ribs when he fell beneath a farm machine and 1 when he accidentally fell from a cliff.

Miscellaneous Positions.—Among the decedents were 256 who had been teachers in medical schools, of whom 97 had reached professorial status. There were 8 deans, 1 of whom had also been president of a medical college, 2 principals of a high school, 2 teachers in public schools, 1 of whom had been head of the business and practice department of the District of Columbia high schools, and 78 members of education boards. One hundred and forty-four had been health officers, 94 members of health boards and 16 members of medical examining boards. Fifty-nine had been coroners, 54 mayors, 27 pharmacists, 23 bank presidents, 13 police physicians or surgeons, 11 missionaries, 7 postmasters, 6 druggists, 5 dentists, 4 lawyers, 1 a city alienist and 1 a police commissioner. There were 39 authors and 21 editors. There were 14 members of legislatures, 1 of whom was a member of the United States Senate. One physician once served as minister to Liberia. In the various military connections, 1 had served in the Boer War, 2 in the Boxer Rebellion, 5 in the Civil War, 2 in the Philippine Insurrection and 516 in World War I. One each had been in the Austrian, German, Hungarian, Greek and Russian imperial armies and 3 in the British army.

Association Officers.—The decedents included 2 who had been Vice President and 3 members of councils, 1 of whom had been chairman and 1 member of the Judicial Council. There were 13 who had been section officers and 34 who had served as members of the House of Delegates. Twenty-nine had been presidents of their state medical societies, 1 president-elect, and 178 had been president of their county medical societies.

Killed in Action

The 2,962 obituaries included 116 physicians who were killed in action during World War II and 118 who died while in military service. Specific information was not available as to the type of death of those killed in action in the general group. Some reports indicated mine explosion, multiple wounds, gunshot wounds, explosion of bombs and fragment shell wounds. A number had first been reported missing in action and subsequently given a presumptive date of death. The following locations as those where injuries resulting in death occurred are noted as received in official reports: Pacific area 19, Germany 13, European Theater of Operations and France 12 each, Okinawa 11, including 6 who were lost in the attack on the *Comfort,* Belgium 8, Asiatic area 7, Luzon 6, South China Sea 5, Italy 4, Africa 3, Io Jima and Mindanao 2 each and the Netherlands, Marianas, Salerno, Austria, China, North America area, Atlantic area, Isle of Capri, Yugoslavia and Algeria 1 each. Two of this group died while prisoners of the German government, 1 when his ship was lost off the coast of the New Hebrides and 1 when his ship was lost en route to Iraq. Thirty-nine died in the ages between 25 and 29, 39 between 30 and 34, 22 between 35 and 39, 10 between 40 and 44, 4 between 45 and 49, 1 between 50 and 54 and 1 between 55 and 59.

Died in Military Service

Of the 118 physicians who died while in military service, aircraft accidents caused the deaths of 22 and vehicle accidents of 10. Heart disease accounted for 25 deaths, 12 of which were attributed to coronary thrombosis. Carcinoma caused 13 deaths. In the remaining deaths from miscellaneous causes, 1 physician died of poliomyelitis and 3 of infectious hepatitis. Two deaths followed an operation. Gunshot wounds led the suicides with 4 deaths, hanging caused 2 and cut artery, acute morphine poisoning, barbiturate poisoning and "no method" 1 each. Eighteen died while in military service between the ages of 25 and 29, 31 between 30 and 34, 14 between 35 and 39, 21 between 40 and 44, 12 between 45 and 49, 6 between 50 and 54, 10 between 55 and 59, 4 between 60 and 64, 1 between 65 and 69 and 1 between 70 and 74.

Of the seven U. S. Public Health Service officers whose deaths were recorded, 1 died when he slipped on the Jacob's ladder while assisting wounded aboard ship, 1 when his ship was destroyed in enemy action, 1 as a suicide, 1 of coronary thrombosis, 1 of heart disease and 2 of cerebral hemorrhage. One died between the ages of 25 and 29, 1 between 30 and 34, 2 between 40 and 44, 1 between 50 and 54, 1 between 60 and 64 and 1 between 65 and 69. There was 1 Merchant Marine casualty, aged 64.

The 116 deaths classified killed in action give an average age of 33.0, while the 118 who died while in military service give 40.1. Combining the 2, an average age of 36.6 is noted. Deducting this group from the general total of 2,962 deaths, an average age of 67.7 is reported. This figure must be interpreted with great care, however, since a proportion of the young physicians who died in service would have undoubtedly died from other causes had they remained in civilian life.

Since the outbreak of the war The Journal has recorded the obituaries of 217 physicians who died in action and 373 who died while in military service. The Journal again emphasizes that the aggregate total of 590 deaths represents only a percentage of the total to be released eventually through official military channels. The Journal will continue to publish these reports as they are received.

THE ONSET AND SPREAD OF POLIOMYELITIS

The method by which poliomyelitis is transmitted from one person to another has long been a subject of active investigation. Recently emphasis has been placed on the environmental and sanitary settings, for the virus can be isolated from sewage, privies, stagnant water and flies caught in polluted areas. The virus may remain inactive in such nonhuman reservoirs for several months and even then be experimentally activated by being transferred to monkeys, but it has not been established that the virus from such an environment gives rise to human poliomyelitis, although the possibility of transmission to human beings from nonhuman sources undoubtedly exists. A large body of facts is now available, however, indicating that the disease is passed from person to person by respiratory and oral transfer; these facts have been considerably reinforced by two recent studies of epidemics observed in Chicago and Buffalo.

The Chicago investigations by Casey and his associates,[1] using material from a large urban community during a nonepidemic year, may be contrasted with a similar report by Casey [2] on patient to patient contact in a rural area during a severe epidemic in Alabama in 1941. The two studies reached practically the same conclusions. The incubation period from the time of exposure to the onset of the prodromal period was from four to thirty-five days, averaging twelve days, with the infectious period lasting three days before or three days after the onset of the prodromal period. Evidence was produced, moreover, establishing at least 80 per cent patient to patient contact in the Alabama epidemic, a similar rate being reported in the Chicago studies. To achieve this figure cases were counted of "illnesses compatible with poliomyelitis." The study was favored by the hospitalization of 230 out of 233 cases during the Chicago epidemic, and the diagnosis in the nonparalytic group was based on a history of a febrile illness, contact with known cases and the finding in the spinal fluid of an elevation of protein to 45 mg. per cubic millimeter or above. With such cases included, multiple cases in the family were the rule rather than the exception and poliomyelitis was found to be, in the Chicago cases, contagious to the degree of 90 per cent in the 1½ to 3½ age group. Paralysis developed in about 1 case in 6.

The Chicago study thus brings to attention the high rate of patient to patient contact in poliomyelitis when fully investigated cases of minor illnesses, particularly by either daily thermometer readings or retrospective spinal fluid examinations or both, are taken into consideration. Until serologic or other inexpensive laboratory tests are available, the diagnosis of poliomyelitis in children without paralysis must rest on such criteria.

The 1944 epidemic in the Buffalo area offered opportunities, as did the Chicago epidemic of 1945, to study the relative importance of the environmental and human reservoirs of the virus in initiating an epidemic. Smith [3] and her associates found that the first 3 paralytic cases in the epidemic did not arise "de novo" but were part of a cycle of poliomyelitis which had been in progress but unsuspected for approximately three months. The incidence of illnesses in the community, moreover, which were highly suggestive of the nonparalytic forms of the disease was at least five times the number of recognized cases. Poliomyelitis tended to develop in a setting of minor illnesses, which, when carefully analyzed, appeared similar to those caused by the virus of the disease. These unrecognized cases formed a human reservoir, and the virus appeared to be continuously active between epidemic periods. Based on these findings, Smith believes that the concept of what constitutes an epidemic of infantile paralysis should be broadened, for an "epidemic" of poliomyelitis may well be under way long before paralytic cases are recognized.

As in the report by Casey, the Buffalo investigators found that the evidence pointed predominantly toward a person to person transfer of the virus, most likely by means of respiratory or oral reactions rather than a transfer by flies. Although the general environmental factors in transmission of poliomyelitis cannot be entirely disregarded, these recent studies tend to stress the direct person to person transfer as the most likely mode of spreading the disease.

Current Comment

EFFECT OF INDUCED JAUNDICE IN RHEUMATOID ARTHRITIS

The appearance of jaundice in the presence of rheumatoid arthritis generally brings about a distinct remission of the arthritic symptomatology. Most recent of the studies on the subject is that by Gardner and her colleagues [1] of Oxford. A total of 312 patients with polyarticular arthritis of the rheumatoid type were given material from cases of infectious hepatitis. Only 32 of the inoculated patients developed jaundice. Of the patients successfully inoculated, the interval between the time of inoculation and the appearance of jaundice varied from twenty-seven to one hundred and thirty-one days. Ten patients became completely free from pain in all their joints; frequently free movement was restored and the joint swellings disappeared; 8 patients became free from pain in many but not all affected joints, the periarticular swellings diminished and mobility was greatly increased; 7 patients obtained some relief from pain and swelling with increased improvement; the joint condition of 7 patients was unaltered. Definite relationship between the intensity of jaundice and type of remission could not be shown. The greatest degree of improvement averaged forty-two days, but a much longer time usually elapsed before the joints relapsed to the condition existing prior to the introduction of jaundice. Studies of the blood sedimentation rate indicated that the jaundice materially interferes with the value of this test as a reflection of activity of the arthritic process; usually there was an abrupt fall in the blood sedimentation rate after the appearance of jaundice. An increased rate above the original value commonly occurred after two or three months, during the period in which the arthritic symptoms remained improved. The remissions produced by the British investigators, as well as those which have been reported by others, have been temporary. Treatment of rheumatoid arthritis by attempting to induce jaundice is not recommended. The procedure is justifiable in the treatment of patients with rheumatoid arthritis only as a possible means of controlled research with the allied possibility of analyzing the mechanism by which such remissions are produced.

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[1] Casey, Albert E.; Fishbein, W. I., and Bundesen, H. N.: Transmission of Poliomyelitis by Patient to Patient Contact, J. A. M. A. **129:** 1141 (Dec. 22) 1945.

[2] Casey, Albert E.: Observations on an Epidemic of Poliomyelitis, Science **95:** 359 (April 3) 1942; The Incubation Period in Epidemic Poliomyelitis, J. A. M. A. **120:** 805 (Nov. 14) 1942; Place of Contact and Radial Spread of Epidemic Poliomyelitis, Am. J. Dis. Child. **69:** 152 (March) 1945.

[3] Smith, Martha L.; Bridge, E. M.; Underwood, Helen E., and Dale, Grace E.: A Study of the Origin of an Epidemic of Poliomyelitis, J. A. M. A. **129:** 1150 (Dec. 22) 1945.

[1] Gardner, Frances; Stewart, Alice, and MacCallum, F. O.: Therapeutic Effect of Induced Jaundice in Rheumatoid Arthritis, Brit. M. J. **2:** 677 (Nov. 17) 1945.

PACIFIC VIVAX MALARIA TRANSMITTED BY ANOPHELES QUADRIMACULATUS

Malaria carriers among personnel of the armed services returning to this country from Pacific combat areas will be widely distributed throughout our country. Some of them will come in contact with anopheline mosquitoes in regions where malaria has been unknown for many years as well as in places where malaria is endemic. The prevalence and course of malaria infection in personnel originating from malarious areas compared with similar data for personnel from nonmalarious locations should be studied. The transmission of imported strains of malaria by indigenous anophelines is of much epidemiologic importance. R. B. Watson[1] in a recent study determined that Pacific strains of Plasmodium vivax can be transmitted by Anopheles quadrimaculatus. From soldiers who had presumably acquired their infections in Pacific war areas, six strains of vivax were isolated by transfer of blood to patients who were to receive malaria therapy. The induced infections were not unlike those produced by the McCoy strain of P. vivax. Some of the patients with known or probable histories of former vivax infections demonstrated immunity to the Pacific strain infections, contrary to the general belief that tolerance conferred by vivax infection is largely homologous. Anopheles quadrimaculatus mosquitoes were fed on these patients with induced malaria when gametocytemia favored mosquito infection. Salivary gland dissections of these mosquitoes demonstrated infections for three of the six Pacific vivax strains. For two of these strains it was found that low densities of gametocytes could infect mosquitoes. Watson concludes that "at least some of the Pacific vivax strains can be transmitted by A. quadrimaculatus."

POSTMORTEM EXAMINATIONS AND THE JEWISH LAW

Because of the undesirability of some resistances against postmortem examination that appear among the relatives of Jewish patients who die, Dr. I. M. Rabinowitch,[1] special lecturer in medical jurisprudence at McGill University, Montreal, recently investigated the laws with regard to postmortem examination contained in the Bible and in the Talmud. He points out that the attitudes of non-Jewish people of the same period toward postmortem examinations were much the same as those of the Jewish people. Arguments in favor of prohibiting postmortem examinations are based on four authentic instances in which a requested postmortem examination was prohibited by a celebrated rabbi. However, Rabinowitch points out that permission was refused in each instance because of the argument that the postmortem examination would not be of any value either in clearing the cause of death or of any benefit to the living. The thorough search which Rabinowitch has made convinces him that nowhere in the Bible, in the Talmudic, in the post-Talmudic or in the later Rabbinical writings is there any evidence that postmortem examinations are prohibited by Jewish law. Indeed such prohibition would be inconsistent with the fundamental directing principle in Judaism—"The Laws were given that man shall live by them, not that they shall die by them."

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

The first peacetime Congress on Medical Education and Licensure in five years will be held in Chicago February 11 and 12. The program appears elsewhere in this issue. The difficult problems of wartime medical education and licensure, which were met and solved with determination, have left an aftermath of reconversion problems of considerable magnitude. Some of these will be presented in the papers and discussions of the formal program. Many others will be the concern of groups affiliated with the Council on Medical Education and Hospitals of the American Medical Association, which regularly hold sessions at the time of the congress. Such groups include the Association of American Medical Colleges, the Advisory Board for Medical Specialties, the National Board of Medical Examiners and several others. Further delay in making hotel reservations is not safe. Communications to the Palmer House should be addressed to Mr. R. L. Collison, mentioning the Congress on Medical Education and Licensure, to insure the best service. Other nearby hotels are the Stevens, Blackstone, La Salle, Morrison, Continental and Congress.

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[1] Watson, Robert B.: Observations on the Transmissibility of Strains of Plasmodium Vivax from Pacific War Areas by Anopheles Quadrimaculatus, Am. J. Trop. Med. 25:315 (July) 1945.

[1] Rabinowitch, I. M.: Postmortem Examinations and Jewish Law.

MEDICINE AND THE WAR

ARMY

BRIG. GEN. RAYMOND W. BLISS NAMED DEPUTY SURGEON GENERAL

Brig. Gen. Raymond W. Bliss was recently appointed Deputy Surgeon General to succeed Major Gen. George F. Lull, who retired after thirty-three years of service in the Medical Department. In addition to his new responsibilities, General Bliss will continue to serve as assistant Surgeon General and Chief of Operations Service. He was recently awarded the Distinguished Service Medal (The Journal, Dec. 29, 1945, p. 1265).

General Bliss became Chief of Operations Service in the Office of the Surgeon General, Washington, D. C., in June 1943 and in August 1944 was made Assistant Surgeon General. He graduated from Tufts College Medical School, Boston, in 1910 and was commissioned in the Army Medical Reserve Corps in 1911.

REFRESHER COURSES FOR ARMY DOCTORS

Major Gen. Norman T. Kirk, Surgeon General of the Army, announced recently that refresher training courses covering twelve weeks will be offered to doctors leaving the service in the fields of medicine, surgery and neuropsychiatry. The program will be available until June 30 at army hospitals to reserve corps, National Guard and medical corps officers scheduled to leave the service.

Such a refresher course would provide temporary duty assignment at a hospital where the medical officer would have clinical work under supervision and opportunity for study of recent advances in medicine.

CANADIAN SURGEON GENERAL VISITS OFFICE OF THE SURGEON GENERAL

Major Gen. C. P. Fenwick, director general of medical Services, Royal Canadian Army Medical Corps, recently completed an inspection tour of the various divisions of the Office of the Surgeon General of the Army. The purpose of his visit was to make a first hand study of the organizational plans for the medical department of the postwar army with the aim of preparing similar plans for the Canadian army. During his stay, General Fenwick also inspected installations at the Army Medical School, Walter Reed General Hospital and several naval medical installations in Washington.

AVIATION MEDICAL EXAMINERS

Sixty-four medical officers recently completed the aviation medical examiners' course at the A. A. F. School of Aviation Medicine, Randolph Field, Texas. Brig. Gen. Eugen G. Reinartz, commandant of the school, presented the graduation awards to the first peacetime class of flight surgeons. These medical officers, specially trained in the phases of aviation medicine dealing with the care of fliers and combat crewmen, will become flight surgeons on completion of additional training.

FRENCH MEDICAL OFFICERS PLAN TO VISIT ARMY MEDICAL INSTALLATIONS

Three French medical officers, Commandant Louis Pages, Commandant Francis Borrey and Commandant Arquie, are making plans to spend four months in the United States, seven and a half weeks of which will be spent in touring Army Medical Department installations. The itinerary includes a ten day stay at Moore General Hospital, Swannanoa, N. C., for the study of methods of treatment of tropical diseases and a three week study at the laboratories and in organization and treatment at Walter Reed General Hospital, Washington, D. C. They plan also to visit the Food and Nutrition Laboratories, Chicago, for a two week observation of research in nutrition and food packaging. A week's study will be spent at Fort Bragg, North Carolina, for an observation of methods of treatment employed there. A discussion of findings at the U. S. Respiratory Laboratory and observation of water and sewerage systems will conclude their trip.

ARMY AWARDS AND COMMENDATIONS

Colonel Herbert C. Gibner

The Legion of Merit was recently presented to Col. Herbert C. Gibner, formerly of Washington, D. C.: Accompanying the award was a citation explaining that "Col. Herbert C. Gibner, Medical Corps, as surgeon of the Seventh Corps Area, later designated the Seventh Service Command, from September 1940 to December 1943 solved the complex medical problems of the command in an outstanding manner during a period of mobilization, rapidly expanding garrisons and changing organization. He swiftly evaluated the general status and availability for active service of approximately four thousand medical department reserve officers and supervised the reorganization of the command's medical department in line with that of the Army. His comprehensive understanding of the exacting requirements and technical details of the medical service, his skill, leadership and mastery of staff relationship, won high regard for the medical section of command headquarters and the service in the field. His exceptional ability as a teacher was so widely recognized that service under his supervision was sought by many medical officers. Colonel Gibner made a major contribution to the efficient operation of the Seventh Service Command" Dr. Gibner graduated from Yale University School of Medicine, New Haven, Conn., in 1903 and entered the service May 1, 1905.

Major Walter W. King

Major Walter W. King, formerly of Peoria, Ill., was recently awarded the Bronze Star medal at Winter General Hospital, Topeka, Kan., where he is now stationed as chief of the surgical service. The citation accompanying the award emphasized his "meritorious service in connection with military operations against the enemy as surgeon, general surgical team No. 5, third auxiliary surgical group, from June 6, 1944 to October 16, 1944, in France and Belgium. Although the arrival of medical equipment and supplies was delayed during the landing of his surgical team on the invasion beach on D day, Major King, displaying outstanding initiative and marked professional ability, organized his group and gave immediate treatment to battle casualties. During subsequent operations he displayed tireless effort and worked many hours each day to bring expert medical service to seriously wounded patients." Dr. King graduated from Northwestern University Medical School, Chicago, in 1930 and entered the service Aug. 26, 1942.

Lieutenant Colonel Rudolph N. Schullinger

Lieut. Col. Rudolph N. Schullinger, formerly of New York, was recently awarded the Legion of Merit for "unusual service in the distribution of penicillin through the various base hospitals in England and for the establishment of a hospital in France, following the invasion." Recently returned from Europe, where he was chief of surgery of the Churchill Hospital, Oxford, England, Colonel Schullinger has now been assigned to the staff of the Halloran General Hospital. Dr. Schullinger graduated from Columbia University College of Physicians and Surgeons, New York, in 1923 and entered the service Feb. 15, 1942

Captain R. L. Wall Jr.

Capt. Roscoe L. Wall Jr., formerly of Winston-Salem, N. C., was recently awarded the Bronze Star Medal for outstanding achievement. His citation reads, in part, "Captain Wall, as surgeon of Headquarters Squadron, Ninth Air Defense Command, rendered invaluable service to the personnel of the headquarters. He worked tirelessly day and night to provide medical attention for the squadron, cheerfully accepting any additional burdens which arose. At the same time, when his staff was depleted by transfers, he trained new personnel and reorganized the action. The professional knowledge, initiative and devotion to duty displayed by Captain Wall reflects the highest credit on himself and the armed forces of the United States." Dr. Wall graduated from Jefferson Medical College of Philadelphia in 1940 and entered the service Nov. 16, 1942.

Colonel Joseph A. Crisler Jr.

The Legion of Merit was recently awarded to Col. Joseph A. Crisler Jr., formerly of Memphis, Tenn., for meritorious services. The citation accompanying the award read, in part, "Demonstrating professional skill and sound judgment, Colonel Crisler capably supervised the activities of his auxiliary surgical group. His superior leadership was reflected in the exceptional work performed by his organization in First Army and evacuation hospitals. . . . Colonel Crisler's extraordinary ability and careful attention to detail contributed directly to the saving of many lives, reflecting highest credit on himself and the military service." Dr. Crisler graduated from Harvard Medical School, Boston, in 1921 and entered the service Sept. 8, 1942.

Lieutenant Colonel I. Herbert Scheffer

The Bronze Star was recently awarded to Lieut. Col. I. Herbert Scheffer, formerly of New York, for "meritorious service in connection with military operations as chief of the Public Health Section headquarters, European Theater of Operations, from Aug. 26, 1944 to May 8, 1945. Lieutenant Colonel Scheffer observed, reported and took necessary action relative to civilian public health conditions in the Paris area as far as the interests of the Allied armed forces were concerned. By his prompt action and superior professional skill he was instrumental in the elimination of numerous health hazards in the area, in keeping to a minimum the incidence of contagious diseases and in correlating the turnover of civil affairs. Colonel Scheffer's accomplishments reflect the highest credit on himself and the armed forces of the United States." Dr. Sheffer graduated from McGill University Faculty of Medicine, Montreal, in 1925 and entered the service Aug. 12, 1942.

Captain Maurice L. Malins

The Soldier's Medal was recently awarded to Capt. Maurice L. Malins, New York, in company with others, for "heroism displayed at U. S. A. A. F. Station 493 on March 4, 1944. When a P-38 type aircraft crashed in flames on the edge of a deep ravine, these members of the 315th Troop Carrier Group, realizing the urgency of effecting a prompt rescue of the pilot, hastened to the scene of the accident and, disregarding the pilot's warning that the aircraft was in imminent danger of exploding, gallantly struggled to extricate the trapped pilot, and, when his release had been effected, assisted in extinguishing the flames. By their prompt and courageous action they were successful in saving the pilot's life, and their unhesitating devotion to duty reflects great credit both to themselves and to the service." Dr. Malins graduated from McGill University Faculty of Medicine, Montreal, in 1932 and entered the service May 21, 1941.

Captain William J. Slaughter

Capt. William J. Slaughter, formerly of Meridian, Miss., was recently awarded the Bronze Star for meritorious achievement in battle. The citation states that Captain Slaughter, with the fighting 41st through the bloody action in the Netherlands East Indies and the more recent heavy battles of the Philippines, distinguished himself by his courage and bravery. His untiring devotion to duty won for him the respect of his fellow doctors and the deepest gratitude of the men he helped." Dr. Slaughter graduated from the University of Tennessee College of Medicine, Memphis, in 1937 and entered the service Nov. 1, 1940.

MISCELLANEOUS

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

ILLINOIS

MacNeal Memorial Hospital, Berwyn. Capacity, 210; admissions, 6,350. Mr. F. J. McCarthy, Administrator (residents—mixed service, now and April 1).

Illinois Masonic Hospital, Chicago. Capacity, 186; admissions, 5,280. Mr. William H. Tenney, Superintendent (resident—medicine).

IOWA

Broadlawns, Polk County Hospital, Des Moines. Capacity, 295; admissions, 3,044. Mr. T. P. Sharpnack, Administrator (3 interns, July 1).

MASSACHUSETTS

Memorial Hospital, Worcester. Capacity, 215; admissions, 7,713. Dr. Winthrop B. Osgood, Medical Director (2 interns).

NEBRASKA

Lincoln General Hospital, Lincoln. Capacity, 223; admissions, 5,649. Mr. Robert B. Witham, Administrator (4 interns, July 1—male or female; resident—mixed service).

NEW YORK

Beth Moses Hospital, Brooklyn. Capacity, 215; admissions, 5,268. Mr. J. Goodfriend, Executive Director (interns, February to October).

NORTH CAROLINA

James Walker Memorial Hospital, Wilmington. Capacity, 331; admissions, 8,636. Mr. George R. Darden, Assistant Superintendent (interns, April 1).

UTAH

St. Mark's Hospital, Salt Lake City. Capacity, 245; admissions, 5,121. Dr. R. M. Muirhead (2 interns).

WASHINGTON

Northern Permanente Foundation Hospital, Vancouver. Capacity, 360; admissions, 11,087. Dr. J. W. Neighbor, Medical Director (interns, April 1 and July 1).

COST OF HEAVY CARBON TO BE CUT NINETY PER CENT

The cost of heavy carbon, used by scientists, for example, to follow the course of sugar or other foods in the body, will be cut from $400 a gram to approximately $40, as a result of a recent industrial development. The plant which will produce heavy carbon (carbon 13, as it is sometimes called) so that its cost will come down is to be built by the Sun Oil Company and the Houdry Process Corporation. The new plant will consist of a series of four or five towers 90 to 100 feet high, will cost approximately $100,000 and will produce about 500 Gm. of carbon 13. Its availability in larger amounts and at a lowered cost will make possible further progress in research on cancer, diabetes and arteriosclerosis. This material can also be used to grow vegetables which would provide the tracer elements through which scientists can watch the ultimate absorption of the food into the body cells.

COURSE OFFERED TO DISCHARGED MEDICAL OFFICERS

Harvard Medical School, Boston, will offer a six months refresher course to medical officers discharged from the armed forces. The first course will begin February 1. The course will emphasize current scientific knowledge and theories and advances in the medical field and will be under the supervision of Eugene C. Eppinger, assistant dean.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Denton, Nathan C Jr, Major, Oneonta
Hall, Edwin P, Capt, Vet Adm, Montgomery
MacLennan, Edward R, Major, E Ida Ave, Opp
McLin, Thomas G, Lt Col, Veterans Adm, Fac, Tuscaloosa.
Selden, Joseph L, Jr, Capt, Watkins Banking Co, Faunsdale
Smith, Virgil D., Capt, Leeds

Arizona

O'Neil, James T, Capt, Coolidge
Sarlin, Charles N, Major, 2010 E 7th St, Tucson
Thompson, Hugh C Jr, Major, Route 2, Box 660, Tucson

Arkansas

Adams, Carl H, 1st Lt, University Hospital, Little Rock
Burt Elmer G, Capt, 141 1st St Crossett
Campbell, Duncan D, Col, Vet Adm Facility, N Little Rock
Harper, Edwin O, Lt Col, Arkadelphia
Hederick, Rogers, Major, 207 N Broadway, Booneville
Lamb, Jones W, Capt, 516 S 5th St, Paragould
Lynch Harry O, Major, Hq Ark CCC, Little Rock
Turner Wylie E Jr, Capt, Piggott

California

Agress, Clarence M, Capt, 920 Carrillo Dr, Los Angeles
Anderson, Frank M, Capt, 1919 Wilshire, Los Angeles
Baer, Irving N, Major, 1832 Winona Blvd, Los Angeles
Bayer, Charles F, Col, Vet Adm, Los Angeles
Benioff, Mortimer A, Major, 105 Lake St, San Francisco
Calcagno, Joseph S, Capt, 1042 Palm St, San Jose
Colebaugh, Charles W, Lt Col, Vet Admin, Los Angeles
Davis, Joseph H, Capt, 2211 Broderick St, San Francisco
Derieux, G H, Jr, Major, 1718 Garden St, Santa Barbara
Dodd, Abby M, Major, 947 W 8th St Los Angeles
Fuiks, Dellivan M, Col, 2216 Ninth Ave, Sacramento
Hagen, Earl O, Capt, 1605 Middleton St, Hanford
Hand, Mark M, Major, 3320 Broderick St, San Francisco
Hazel, James K, Capt, 448 Hobart Ave, San Mateo
Irvine, Samuel R, Major, 612 N Alpine Dr, Beverly Hills
Johnson, Raymond L, 1st Lt, 317 E Olive St, Corona
Kirvonos, A F, Major, 135 S Mansfield Ave, Los Angeles
Lacoe, Jeremiah R, Capt, 621 S Fairfax Ave, Los Angeles
Langsdorf, Gordon C, Major, 357 W 10th St, Claremont
Leonard, Maurice E, Major, 1835 Vallajo St San Francisco
Mounce, Chanceford A, Major, 3433 Century Blvd, Lynwood
Nelson, Clarence Major, 55 Allston Way San Francisco
Newman, T R Capt, 1400 Fell St (S P GH), San Francisco
Portis, Robert B, Capt, 1715 Ambassador Dr Beverly Hills.
Raitt Albert E Major, 1501 W Main St Visalia
Riordan, James J Capt, 450 Sutter St, San Francisco
Sarkisian, Milton V, Major, 2770 Marty Way, Sacramento
Shier, Cyril W, Major, 224 S 1st Ave, Arcadia
Shuman, John W Jr, Capt, 507 11th St, Santa Monica
Toy, Arthur J, Capt, 553 Buena Loma Ave, Altadena
Tretheway, Lester E Major, 945 N El Dorado St, Stockton
Ullrich Fred D Capt 7788 Lookout Dr La Jolla

Colorado

Armstrong, Hiram E Major, Pueblo
Barber, Donn J, Major, 1811 13th Ave, Greeley
Burner, Jacob O Jr Capt, Nucla
Crary, Richard H, 1st Lt, 965 S York St, Denver
Gersh, Isadore, Major, 1684 Harrison St, Denver
Hawlick Garfield F, Capt, 431 Lincoln, Pueblo
Hodges, Dean W, Major, 1616 Kearney St, Denver
McBrayer, Benjamin E, Capt 630 W Orman Ave Pueblo
Nelson, John M, Capt, 112 Marion St, Denver
Page, Donald F Major, 515 Mapleton Ave, Boulder
Smith, George P, Capt, 1455 Monroe St, Denver

Connecticut

Aiello Louis J Capt 37 Maple St, New Haven
Dichter, Irving S 1st Lt 33 Forest St, Stamford
Harvey, Edward R Capt, 87 Washington Ave, Seymour
Lafemina, Nicholas F Capt, 60 Dawes Dr, Hamden
Ragus, Celia E, Capt 405 Coran Ave, Shelton
Redlich, Frederick C, Capt, Gaylord Farm Sanit Wallingford
Rubinow, Merrill B, Major, 192 E Center St, Manchester
Sabloff, Jack, Capt, 540 Prospect Ave, Hartford
Townsend, W. C, Lt Col, 48 Middlebrook Rd, W Hartford
Winters, Hyman, Capt 405 N Main St, Bristol
Yohn, Albert K, Capt, Rt 2, Norwalk

Delaware

Dobson, Leslie M, Major, Millsboro
James, Oliver A, Capt, 317 S Walnut St, Milford
Kurland, Abram B, Capt, 1025 Brandywine Blvd, Wilmington
Lessey, Arthur G Major, 304 Hillcrest Ave, Wilmington
Urie, James W, Capt, 207 S Maryland Ave, Wilmington

District of Columbia

Atkinson, Walter, Lt Col, 1835 Eye St N W, Washington
Berman, Leonard S, Capt, Woodley Pk Towers, Washington
Blumenthal, Basil, Major, 3604 Mass Ave N W, Washington
Damian, Julius D, Capt, 2700 Q St N W, Washington
Gordon, A B, Capt 2812 Connectic't Ave, N W, Washington
Harrison, Malcolm D, Major, 4540 49th St N W, Washington
Kramm, A H Capt, 3228 Woodley Rd, N W, Washington
Lowry, Sidney W Capt, Rt 1, Box 269, Benning Station
Simpson, G V, Lt Col, 1715 Hokan Rd, N W, Washington
Stebbing Philip A E Major, 800 N Carolina Ave S E,
  Washington
Weiner, M A, Capt, USVA, Mt Alto Hosp, Washington
Welebir, Andrew J Capt, 2400 Tilden St, N W, Washington

Florida

Cobb, Alva T, Major, 1404 Cherokee Ave, Gainesville
Costantino, Eugene F, Capt 2808 12th St, Tampa
Dell James M Jr, Major Rt 2, Box 61C, Gainesville
Dix, John W, Capt, 2500 Coral Way, Miami
Farber, William P Major, 3649 Foster Mill, St Petersburg
Jahn, Robert J, Capt, 203 Ave C, N E, Winter Haven
Keramidas T C, Lt Col, 220 First St, N, Winter Haven
Newell, Charles E, Major, 921 N W 29th Ave, Miami
Nix, Harold G, Major, 2109 Bayshore Blvd, Tampa
O'Connor, James B Capt, Florida State Hosp, Chattahoochee
Ramsey, Russell W, Capt, 108 E Park Ave, Winter Park
Tompkins Raymond D, Lt Col Vet Adm Facility, Bay Pines
Wallace, Arthur J, Jr Major, Box 68, Lutz
Zivitz, Nelson, Major, 311 Lincoln Rd, Miami Beach

Georgia

Baker, William R, Lt Col, Grady Hospital, Atlanta
Bell, John A, Jr, Lt Col, Dublin
Bleich, Jack K, Lt Col, 778 Brookridge Dr, N E, Atlanta
Bosworth, Edward L Major, 506 E 9th St, Rome
Charlton, Thomas J, Major, 118 E 35th St, Savannah
Cohen Isidore R Capt 354 Loomis Ave S E Atlanta
Coles, William C, Major, University Hosp, Augusta
Eldridge, Franklin G, Lt Col, 1417 Williams St, Valdosta.
Fillingim, David B, Capt 716 E 52d St, Savannah
Feild William M, Capt 530 3d Ave, Albany
Gillespie, Robert H Capt Grady Hosp, Atlanta
Johnson, Edward G, Capt, 3d St, Manchester
Levy, Tracy, Capt, Hinesville
Pacifici, Joseph, Capt, 205 E 54th St, Savannah
Quillian, William B, Jr, Major, 118 Market St, Cartersville.
Read, Benjamin S, Col 993 Stovall Blvd, Atlanta
Sadove, Max S, Capt, 1105 E 38th St, Savannah
Sams Frank H, Capt, Reynolds
Schuessler, George D, Major, 2105 Wynnton Rd, Columbus
Talmadge, Harry E, Major, Tip Top, Athens
Trimble, W H, Major, 715 Flat Shoals Ave, S E, Atlanta
Westerfield, Charles W, Capt, University Hosp, Augusta.
Williams, Alton F, Major, 225 Lee St, Metter

Idaho

Kerns Marion J, Capt, Fairfield
Sawyer, Malcolm H, Major, Twin Falls
Zeschin Oscar L, Capt, American Falls

Illinois

Armstrong Ray C, Major, 525 Robeson Bldg, Champaign
Barkett, Soddie J, Major, 3500 Washington Ave, Cairo
Baxter, Edward S, Capt 4043 Central Ave, Western Springs
Bloomenthal, Ernest David, Major, 5111 Drexel Ave, Chicago
Bowman, Harold S, Lt Col, Greenfield
Bradburn, George Burmell, Major, 222 E Chestnut St, Chicago
Cohn Arnold M, Major, 3901 N Kimball Ave, Chicago
DeBartolo, Hansel M, Capt, 523 S Lake St, Aurora
Devries, Jerry, Capt, 355 Lawrence Ave, Marseilles
Ertin, Oscar L Capt, 6350 N Clark St, Chicago
Farmer, Donald F, Capt, 1912 W 103 St, Chicago
Feinberg, Milton, 1st Lt 5402 Ingleside Ave, Chicago
Fox, Robert T, Capt, 816 Milburn St, Evanston

PHYSICIANS SEPARATED FROM SERVICE

Illinois—Continued

Gawne, Charles B., Capt., 418 S. Harvey Ave., Oak Park.
Gillespie, James B., Major, 602 W. University, Urbana.
Graham, James E., Lt. Col., 1509 Whittier, Springfield.
Hall, Byford I., Capt., 343 N. Washington St., DuQuoin.
Harper, Paul V. Jr., Capt., 5748 Drexel Ave., Chicago.
Hartman, Henry A., Capt., 1147 S. Poplar Ave., Kankakee.
Hastings, Donald W., Lt. Col., 450 E. Illinois Rd., Lake Forest.
Ippolito, Anthony S., Capt., 818 W. Cabrini St., Chicago.
Johnstone, *John Hick, Major, 1005* Walnut St., Eldorado.
Jones, Alfred E., Major, 5346 Cornell Ave., Chicago.
Kahn, Jack L., Capt., 1318 Hyde Park Blvd., Chicago.
Keating, Donald J., Capt., 113 N. Hill St., Momence.
Koransky, David S., Capt., 9 S. Kedzie Ave., Chicago.
Krajec, Andrew, Capt., McLeansboro.
Lang, Morris, Capt., 1090 E. Duane Blvd., Chicago.
Law, Stanley G., Capt., 215 N. Huffman St., Naperville.
Levitin, Emil D., Capt., 907 S. Wolcott Ave., Chicago.
Livingston, A. Edward, Capt., 608 Lafayette Apts., Bloomington.
Loritz, Anthony F., Major, 4248 Wentworth Ave., Chicago.
Love, Loren L., Major, 603 N. Victor St., Christopher.
Lubin, Jerome J., 1st Lt., 6423 S. California Ave., Chicago.
MacLeod, Sidney J., Lt. Col., 7230 Paxton Ave., Chicago.
Mahru, Meier, Capt., 219 W. State St., Sycamore.
Merar, Thomas J., Major, 535 Briar Pl., Chicago.
Nadeau, Oscar E., Lt. Col., 747 Hutchinson St., Chicago.
Neeseman, Arthur C., Major, Fox Lake.
Oberhill, Harold R., Capt., 1212 57th Ave., Cicero.
Peltzer, Wesley E., Major, Mount Vernon.
Perkins, Robert D., 1st Lt,, 2307 16th Ave., Moline.
Pixley, John S., Capt., 514 E. Seminary St., Wheaton.
Plaut, Adrian A., Capt., 5100 Kimbark Ave., Chicago.
Ricewasser, Henry, Capt., 6165 Winthrop Ave., Chicago.
Ritter, Jerome, Capt., Vet. Adm. Facility, Danville.
River, Louis P., Lt. Col., 318 Linden Ave., Oak Park.
Roberts, Ralph C., Capt., 146 Clyde Ave., Evanston.
Sanfilippo, Girolamo J., Capt., 5125 W. Division St., Chicago.
Schmidt, *William B., Capt., 302 S. Cross, Robinson.*
Schoenwetter, Arthur H., Major, 6859 Crandon Ave., Chicago.
Silverstein, Norman, Major, 1813 S. Trumbull Ave., Chicago.
Smith, Edward C., Capt., 11208 Indiana Ave., Chicago.
Stillerman, Manuel L., 1st Lt., 5532 Ingleside Ave., Chicago.
Talbot, Charles C., Capt., 62 E. Division St., Chicago.
Thomas, Morris E., Capt., 303 E. Superior St., Chicago.
Tobin, James W., Major, 164 Division St., Elgin.
Tucker, Joseph, Capt., 167 N. Taylor Ave., Oak Park.
Vlcek, Anton J., Capt., 3000 S. Pulaski Rd., Chicago.
Wagner, Leonard M., Major, 4901 N. Seeley Ave., Chicago.
Wald, *Sidney I., Major, 307 E. Main St., DuQuoin.*
Weihe, Arthur R., Capt., 850 N. Elmwood Ave., Oak Park.
Weinberger, L. M., Lt. Col., 5517 S. Everett Ave., Chicago.
Yaeger, Harry A., Capt., 1605 N. State St., Litchfield.

Indiana

Adair, Samuel L., Major, 111 W. Court Ave., Jeffersonville.
Appel, William P., Capt., St. Joseph's Hosp., Ft. Wayne.
Bretz, John M., Capt., City Hosp., Indianapolis.
Burkhardt, Boyd A., Major, 328 N. West St., Tipton.
Caplin, Irvin, Capt., 2208 Park Ave., Indianapolis.
Carter, Jean V., Major, 315 W. Washington St., Tipton.
Daugherty, Fred N., Major, 415 W. Main St., Crawfordsville.
Dragoo, Farrol A., Major, 324 N. 5th St., Middletown.
Evans, Paul V., Capt., 1649 N. Alabama, Indianapolis.
Fagaly, William J., Major, 57 Oakey Ave., Lawrenceburg.
Hall, Orville A., Capt., 3121 W. Gilbert St., Muncie.
Hare, Earl H., Lt. Col., 5524 N. Delaware St., Indianapolis.
Hedgcock, Robert A., Capt., 857 E. Clinton St., Frankfort.
Hickman, Archibald L., Jr., 1st Lt., 34 Ind. Ill. Pk., Hammond.
Kraft, Bennett, Capt., 7025 Washington Blvd., Indianapolis.
McNaughton, Lawrence M., Major, 703 Main St., Petersburg.
Muller, Lullus P., Capt., Fowler.
Nesbit, Leonard L., Capt., 2002 W. 14th St., Anderson.
Regan, George L., Capt., Sellersberg.
Shanklin, James G., Capt., 7612 Monroe Ave., Hammond.
Smith, Robert A., Lt. Col., 1128 Bundy Ct., New Castle.
Thompson, John M., Lt. Col., 320 N. Jackson, Bremen.
Weigand, C. G., Lt. Col., 5234 N. Capitol Ave., Indianapolis.
Wood, Donald E., Major, 6142 Harvard Ave., Indianapolis.

Iowa

Agnew, Lloyd C., Capt., University Hospital, Iowa City.
Boden, Herbert N., Capt., Truro.
Clark, Richardson E., Capt., 215 N. Franklin St., Manchester.
Elliott, Vance J., Major, Knoxville.
Fellows, Joseph G., Major, 1017 Burnett, Ames.

Iowa—Continued

Haines, Diedrich J., Capt., 11 35th St., Des Moines.
Henderson, Lauren J., Major, 305 W. 22d St., Cedar Falls.
Henning, Garold G., Major, Milford.
Kugler, Frank E., Major, Childrens Hosp., Iowa City.
Larson, Marvin O., Lt. Col., Hawarden.
Leehey, Paul J., Major, 201½ 1st, E., Independence.
Mackie, Donald G., Capt., 213½ N. Main St., Charles City.
Parkin, George L., Capt., 911 Rider St., Iowa City.
Patrick, John E., Capt., 203 N. 3d Ave., Marshalltown.
Ristine, Leonard P., Major, 400 E. Washington, Mt. Pleasant.
Todd, Donald W., 1st Lt., 306 6th St., Guthrie Center.
Warren, Robert F., Major, 1145 E. College St., Iowa City.

Kansas

Baird, Cecil D., Capt., Eureka.
Bosse, Frank K., Major, 1301 Riverview Dr., Atchison.
Cramer, Guy W., Major, 1726 Clark St., Parson.
Gier, Jacob B., Capt., Vet. Adm. Facility, Wadsworth.
Keeler, James E., Lt. Col., 1321 E. 28th St., Kansas City.
Leigh, Lawrence E., Capt., 1700 Louisiana, Lawrence.
McCarty, Dale C., Lt. Col., 320 N. Springfield Ave., Anthony.
McIlvain, Guy B., Capt., 515 Lane St., Clay Center.
Neas, Ingall H., Major, 2925 N. 27th St., Kansas City.
Oltman, Theodore V., Major, 723 Oak, Newton.
Pearce, Albert R., Lt. Col., Vet. Adm. Facility, Wichita.
Reid, James A., Major, 225 W. Park, Pittsburg.
Shaw, Darrel T., Capt., 1148 Rowland Ave., Kansas City.
Thorpe, Francis A., 1st Lt., 420 Stout St., Pratt.
Todd, J. G., (colored) 1st Lt., 3505 N. 27th St., Kansas City.
Watson, James D., Capt., Claflin.

Kentucky

Abell, Joseph S., Capt., 3219 Linnet Rd., Louisville.
Atkinson, Willam B., Major, Campbellsville.
Ballard, Gyrlee T., Capt., Burgin.
Blackerby, James, Major, Stanford.
Brumback, Kenneth W., Capt., 508 E. Pike St., Cynthiana.
Gardner, Richard W., Capt., 4000 Grandview Dr., Ashland.
Green, Norval E., Capt., Benton.
Hermann, George J., Capt., 17 E. 6th St., Newport.
Hyman, Maurice, Capt., Crittenden.
Keaney, John M., Jr., Major, 1841 Roanoke Ave., Louisville.
McCandless, Harvey G., Major, 9 Dumfries Ave., Ft. Thomas.
Messer, Clarence R., Capt., 709 Eversole St., Hazard.
Phillips, Thomas L., Jr., Capt., Kuttawa.
Reed, George C., Capt., Willisburg.
Rulander, Fred W., Capt., 824 Cherokee Rd., Louisville.
Seay, Horace H., Capt., 120 E. Oak St., Louisville.
Thurman, David H., Capt., Gen. Hosp., Louisville.
Tracy, Edward J., Capt., 1500 Castlewood Ave., Louisville.
Wahle, Livingston A., Capt., 124 S. Central Ave., Somerset.
Warfield, Robert B., Capt., 221 Chanault Rd., Lexington.

Louisiana

Abramson, Samuel R., Capt., Touro Infirmary, New Orleans.
Bayon, Henry John, Major, 2213 Napoleon Ave., New Orleans.
Black, Charles L., Major, Coushatta.
Bourgeois, Ralph L., Capt., 121 Jackson St., Lafayette.
Breaux, Edgar P. Jr., Capt., Charity Hosp., New Orleans.
Cohn, Harold S., Capt., Vet. Adm. Facility, Alexandria.
Craighead, Claude C., Major, Athens.
Crain, Clifford W., Capt., Bogalusa.
DeMahy, Bernard M., 1st Lt., Charity Hosp., New Orleans.
Diaz, Walter P., Major, Charity Hosp., New Orleans.
Dyer, John L., Major, Touro Infirmary, New Orleans.
Foret, Marcel J., Major, 2810 Napoleon Ave., New Orleans.
Funk, Barclay, Major, 1838 Vance Ave., Alexandria.
Giles, Elbert J., 1st Lt., 1430 Tulane Ave., New Orleans.
Howell, James M., 1st Lt., P. O. Box 65, New Iberia.
Jones, Frank J., 1st Lt., 810 Park *Blvd., Baton Rouge.*
Jones, Jack Reiley, Capt., 1202 Convention St., Baton Rouge.
Kron, J. L. Jr., Major, 1228 Elysian Field Ave., New Orleans.
Meltzer, Leonard, 1st Lt., 406 Chartres St., New Orleans.
Montagnet, J. M., Jr., Major, Charity Hospital, New Orleans.
Netterville, Rush E., Major, Huey P. Long Hosp., Pineville.
Richard, Golden G., Major, Lake Arthur.
Robinson, Melvin D., 1st Lt., Greenwell Springs.
Silvey, Mortimer, Capt., Charity Hosp., New Orleans.
Ward, Thomas G., Lt. Col., Thibodaux.
Wild, Frederick A., Jr., Capt., 2468 Dauphine St., New Orleans.
Wilen, Carl J. W., Major, 1430 Tulane Ave., New Orleans.
Wood, Frank A., Capt., 3001 S. Grand St., Monroe.
Woody, Norman C., Jr., Capt., 1333 Jennings St., Shreveport.
Zengel, Harry L. Jr., Capt., 2575 Elder St., New Orleans.

PHYSICIANS SEPARATED FROM SERVICE

Ohio—Continued

Krakoff, Morris A., Capt., 818 Montrose Ave., Bexley.
Levine, Milton, Capt., 4312 Rhodes Ave., New Boston.
Longnaker, John W., Capt., 1630 Calif. Ave., Cincinnati.
McLin, William M., Capt., 800 Superior Ave., Dayton.
Mannino, Rosario G., Capt., 177 Judson Ave., Newark.
Munns, Thomas A., Major, RFD 1, Oxford.
Neidus, Morris W., Major, 367 Indianola Rd., Youngstown.
Neiswander, Allen C., Capt., Pandora.
Oliver, William S., Capt., 392 5th St., Middleport.
Phinney, James D., Major, 3676 Kendall Ave., Cincinnati.
Rogers, John A., Capt., 163 Indianolo Rd., Youngstown.
Sabin, Albert B., Lt. Col., Childrens Hosp., Cincinnati.
Schaiberger, George L., Capt., 502 Eleanor Ave., Toledo.
Torrence, John F., Capt., 33 E. Market St., Germantown.
Van Epps, Herbert F., Major, 235 W. Slingluff St., Dover.
Venar, Yasha A., Major., 1401 Oakridge Dr., Cleveland Hgts.
Walker, Glenn H., Major, 410 W. Main St., Woodville.
Weaver, Thomas A., Jr., Major, 2760 Madison Rd., Cincinnati.

Oklahoma

Bishop, Calmes P., Capt., Picher Hosp., Picher.
Duff, Kenneth R., Major, 712 B Ave., Lawton.
Gayman, Byron R., Major, Vet. Hosp., Muskogee.
Gill, Dan C., Capt., 1319 E. 6th St., Okmulgee.
Gordon, Douglas M., Lt. Col., 116 Glenside, Ponca City.
Hinson, Bruce R., Major, 1017 W. Wabash, Enid.
Knight, Claude B., Capt., 211 W. 2d St., Wewoka.
Kreger, Glenn S., Capt., 609 N. Main, Tonkawa.
Muntz, Earl R., Major, 525 S. Highland, Ada.
Parker, James H., Major, Vet. Adm., Muskogee.
Ricks, James R., Jr., Capt., 1005 Hill St., Oklahoma City.
Wilson, Jewell R., Lt. Col., Seminole.
Yeary, Edwin C., Major, Elmore City.

Oregon

Douglas, Earl W., Capt., RFD 11, Box 428, Portland.
Du Bois, Earl D., Lt. Col., 1020 S.W. Taylor St., Portland.
Fisher, Arthur A., Capt., 312 N. Main St., Lebanon.
Power, Frank K., Major, 1805 Center St., Salem.
Rich, David R., Major, 908 Main St., LaGrande.
Rodda, John S., Capt., 2648 N.E., Stuart Dr., Portland.
St Pierre, Roderick G., Lt. Col., 215 U.S. Ct. House, Portland.
Thorstenberg, Edward, Capt., 5th & F Sts., Grants Pass.
Wall, Edward C., Major, Prineville.

Pennsylvania

Belber, Joseph P., Capt., 1537 W. Chew St., Philadelphia.
Bloom, Joseph Bender, Capt., 416 Oakland Ave., Pittsburgh.
Burtoff, Samuel B., Capt., 1104 N. 40th St., Philadelphia.
Chesler, William, Major, 268 W. Susquehanna, Philadelphia.
Cloud, Milton H., Lt. Col., 294 Morgantown St., Uniontown.
Connelly, Michael E., Capt., 447 W. State St., Sharon.
Delp, Charles W., Major, 38 N. 2d St., St. Clair.
Dittmar, Stuart W., Capt., Kenwood Rd., Chambersburg.
Endres, Warren Harris, Major, Fogelsville.
Evashwick, George, Major, 23 Prospect St., Turtle Creek.
Fishkin, Hymel, Lt. Col., 1913 Freeport Rd., Natrona Heights.
Gabreski, Thaddeus S., Major, 95 Spruce St., Oil City.
Gefter, William I., Capt., 1321 W. Roosevelt Blvd., Philadelphia.
Giordano, Anthony M., Capt., 522 N. 10th St., Reading.
Hackman, Stanley H., Capt., 39 E. Main St., Strasburg.
Heath, Frederick C., Capt., 918 Elizabeth Ave., Laureldale.
Herron, Carroll E., Major, 316 Lehigh St., Pittsburgh.
Horvath, D. C., Capt., 431 Division St., Bellevue, Pittsburgh.
Imbriglia, Joseph E., Major, 1845 S. 17th St., Philadelphia.
Kendrick, Oliver R., Lt. Col., 9 S. 2d St., Duquesne.
Kimbrough, R. A., Jr., Col., 13 St. Asaph's Rd., Bala-Cynwyd.
Lawrence, Salvatore A., Capt., 113 Harper, Dunmore.
Leone, Peter P., Major, 716 S. 7th St., Philadelphia.
Lyon, William C., Capt., 127 Valley Rd., Ardmore.
McFarland, Paul E., Lt. Col., Saxonburg.
Michael, Maurice A., Capt., 1501 Clearview St., Philadelphia.
Muzi, Americo J., Capt., 720 S. Main St., Old Forge.
Phillips, Vernon R., Capt., Dalmatia.
Pierce, Leslie S., Major, 217 Penna Ave., Greensburg.
Rabinovitz, Moses, Capt., 2912 Germantown Ave., Philadelphia.
Renn, Carl G., Major, 31 S. Main St., Hughesville.
Scanlan, Thomas J. D., Major, 22 Philadelphia Ave., Shillington.
Schaefer, Charles R., Lt. Col., 3208 Brownsville Rd., Pittsburgh.
Schaffer, Edward D., Capt., Northampton St., Bath.
Thomas, Harold W., Lt. Col., 1700 Orchard Ave., Arnold.
Trueman, Robert H., Major, 2139 S. 16th St., Philadelphia.
Vernocy, William C., Major, 1508 Coropolis.
Walker, Robert L. III, Capt., 323 West St., Wilkinsburg.

Texas

Adams, Clyde (female), Capt., Swift Route, Nacogdoches.
Alessandra, Samuel A., Capt., 4145 Normandy, Dallas.
Collins, William A. Jr., Capt., 2919 Grant Ave., El Paso.
Curtis, Wickliffe R., Lt. Col., 1501 Rim Rd., El Paso.
Dyson, Albert H. Jr. (colored), Major, 2816 State St., Dallas.
Eidman, Frederich G., Capt., 1449 Lawson, Houston.
Gilliland, James O., Major, 512 N. Sommerville, Pampa.
Hahn, William B., Capt., Columbus.
Haynes, Henry M. Jr., Capt., 210 S. 5th St., Gatesville.
King, Walter B., Jr., Capt., 2305 Morrow, Waco.
Lander, Roy S., Major, 1405 N. Glass St., Victoria.
Lett, James E., Capt., 921 Med. Arts Bldg., Dallas.
Martinak, Richard E., Capt., 3937 Junis Apt. 304, Dallas.
Orlando, Anthony M., Capt., 319 Buckingham St., San Antonio.
Searcy, Tom A., Capt., Box 466, Hearne.
Vieth, Richard P., Capt., 303 E. 10th St., Austin.
Walborn, Kenneth B., Capt., 3515 Lexington Ave., Dallas.

Vermont

Brady, Charles E., Major, 29 W. St., Barre.
Brosseau, Albert A., Capt., Highgate Falls.
Brown, Madison B., Lt. Col., 419 S. Prospect St., Burlington.
Chaffee, Clyde L., Capt., Newport.
Jardine, Ralph R., Capt., Lyndonville.
Thomas, John M., Jr., Capt., 24 Pleasant St., Woodstock.
Walsh, Maurice J., Capt., 114 Buell St., Burlington.
Willard, Paul C., Capt., Springfield.

Virginia

Axelson, Gordon, Major, Crozet.
Cocke, John A., Capt., Hollins College.
Culbertson, James W., Capt., 310 Park Place, Charlottesville.
Holsinger, Hubert Burner, Major, Farmville.
James, Charles F., Jr., Major, Appomattox.
Kinser, Prentice, Jr., Major, 115 Westmoreland Ct., Danville.
Nunnally, Claude A., Lt. Col., 405 Fauquier St., Fredericksburg.
Oast, John W. III, Capt., 826 Princess Anne Rd., Norfolk.
Rucker, Edwin M., Major, Med. Arts Bldg., Richmond.
Showalter, Josiah T., Major, Cambria.
Thompson, Girard V., Capt., Chatham.
Thompson, W. T. Jr., Major, 3410 Chamberlayne, Richmond.

Washington

Blair, John Ellwood, Capt., E. 901 26th Ave., Spokane.
Brown, J. Harold, Capt., 302 Pennsylvania, Cle Elum.
Corkery, John R., Capt., 303 Rookery Bldg., Spokane.
Dillon, Roll N., Major, 1618 20th N., Seattle.
Lowenstein, Bernard, Major, Tacoma Indian Sanat., Tacoma.
McElroy, Donald M., 1st Lt., 732 N. Stadium Way, Tacoma.
Nelson, Averly M., Capt., Route 2, Wenatchee.
Roe, James A., Capt., 504 Percival St., Olympia.
Sims, William F., Capt., 1409a W. Yakima, Yakima.
Tennant, Raymond E., Lt. Col., 1227 Med. Dental Bldg., Seattle.

Wisconsin

Anderson, Lawrence L., Major, Wisconsin Gen. Hosp., Madison.
Doolittle, John W., 1st Lt., 130 Breese Terrace, Madison.
Mann, Robert W., Capt., 2863 N. Lake Dr., Milwaukee.
Ottenstein, Harold H., Capt., 2760 N. 11th St., Milwaukee.

CHANGES

Archer, George Ferguson, Capt., 21 Peachtree Memorial Dr., Atlanta, Ga. Reported week 11-2-45.
Ascher, David, Major, 1657 Commonwealth Ave., Boston, Mass. Reported week ending 11-30-45.
Dreier, Joseph Francis, Major, P. O. Box 30, Dushore, Ga. Reported week ending 10-26-45.
Fisher, Edward Johnston, Capt., 807 Spruce St., Philadelphia, Pa. Reported week ending 11-2-45.
Frazier, John Wesley, Lt. Col., Salisbury, N. C. Reported week 10-12-45.
McKibbin, John Philip, Capt., 430. 7th St. S.W., Rochester, Minn. Reported week 11-30-45.
Newman, William Harris Jr., Major, Clark's Green, Pa. Reported week 10-19-45.
Phillips, Water Aills, Lt. Col., Arlington, Tenn. Reported week ending 9-21-45.
Wickard, Charles Phillip, Capt., 2809 Gaines St., Little Rock, Ark. Reported week 10-19-45.
Zink, Linus Anthony, Major, Pecos, Texas. Reported week ending 9-21-45.

Foregoing listed officers have been recommended for return to active duty.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Jan. 14, 1945.

Dangers of Biologic Warfare Stressed in Report

George W. Merck, president of the Merck Chemical Company and special consultant to the Secretary of War, states in a special report presented to Secretary of War Patterson that biologic warfare, the spread of infection and disease, may become a greater threat to the peace of the world than the atomic bomb. This was the opinion of the group of scientists who compiled the report after more than four years of work on the subject, carried on in complete secrecy. It was also revealed that American scientists had feared an outbreak of germ warfare at the time of the landing in Normandy but were ready for it. The Navy announced that it had developed protective rubberized germ proof suits.

Capital to Exterminate Rats as Safeguard Against Typhus

Typhus has stricken a 16 year old girl and typhus infested rats have been caught in Washington, with the result that the District of Columbia has launched a campaign to clear out its notorious rat nuisance. Dr. John Essex, Public Health Service expert of Atlanta, Ga., has been brought in and latest scientific methods, including experiments with DDT and the new rat poison 1080, will be used. The District of Columbia public health engineer declared that swift action is required "if we're to ward off a typhus outbreak. It's raging down south and we can't allow it to spread here."

Subcommittee to Redraft Unification Bill

A new draft of the administration's Army-Navy unification bill, which involves medical branches of the armed forces, is to be worked out by a three man subcommittee of the Senate Military Affairs Committee. An effort will be made to speed up action when Congress resumes, January 14. Senate Military Chairman Elbert D. Thomas, Democrat of Utah, will head the subcommittee. The completed bill is expected to follow President Truman's recommendation for a single department under one cabinet head, with coordinated Army, Navy and Air arms, each under an assistant secretary.

Army Tablets Go Back to Manufacturers

The Surplus Property Administration reports that surplus amphetamine sulfate tablets, declared by the U. S. Food and Drug Administration to be extremely dangerous if distributed as at present packaged and if not used under medical supervision, will be sold back to the original manufacturer. The tablets from military medical stocks were declared surplus and will be sold to Smith, Kline and French Laboratories of Philadelphia, the manufacturers, at not less than the original cost to the government for repackaging and resale.

Veterans Administration Hires Specialist on Medical Problems of Women

For the first time in its history, the Veterans Administration has hired a special consultant on medical problems of women. Gen. Omar N. Bradley announced the appointment of the new post of Lieut. Col. Margaret D. Craighill, specialist on gynecology and surgery, who has served as consultant for women's health and welfare to the Surgeon General of the Army. She entered the Medical Corps in 1943 as a major.

Shortage of Housing Feared Menace to National Health

Washington officialdom, fearful that the current national shortage of housing might menace health, is getting help from the armed forces. The Navy has moved to provide some relief by declaring surplus $56,000,000 worth of building materials and 5,000 quonset huts located at four depots in the United States. The barracks could house an estimated 70,000 persons.

Council on Medical Service and Public Relations

PREPAID MEDICAL CARE NEWS

Yonkers Experiment

A recent experiment of United Medical Service, Inc., and Associated Hospital Service of New York should show rather definitely how interested people are in protecting themselves against the costs of medical care. On November 26 these two organizations started on a two weeks campaign to interest the citizens of Yonkers in the prepayment plan idea.

Six enrolment offices were located in business organizations and libraries throughout the city. Posters in these offices, in railway stations and at other prominent locations set forth the objectives of the campaign "to enable every person under 65 years of age who lives or works in Yonkers to enroll in the prepaid plans." During the period of the campaign, persons who were self employed, unemployed or otherwise unable to enroll through a group were given the privilege of enrolling without having to file a medical questionnaire.

Information concerning the campaign was also made available to the public through a series of paid announcements in the local press and through the voluntary cooperation of the city's medical societies, hospitals, welfare organizations and business and professional groups. For instance, Mayor Curtis E. Frank, on the opening day, issued a proclamation sponsoring the campaign. Girl and Boy Scouts helped to distribute literature and set up window displays. The Yonkers Medical Society passed a resolution endorsing the campaign. Official endorsements were also voted by such organizations as the common council of the city of Yonkers, the Social Planning Council, the Yonkers Teachers Association and the Yonkers Department of Public Health.

These endorsements, together with day by day progress reports, were fully reported in the press. Commentators broadcast the details of the campaign over the radio. People attending their places of worship heard announcements from the pulpit. The board of education cooperated by granting the committee permission to distribute Blue Cross and United Medical Service literature to students of public and parochial schools. Each set of literature, accompanied by a form letter addressed to the parents, was placed in an envelop which the pupils were urged to take home. A letter from the superintendents to the principals suggested that the pupils be advised of the importance of the literature. In some schools additional letters were sent by the principal to the parents.

Thousands of people learned about the campaign at local movie houses, where the film "Every Two Seconds," with a campaign trailer attached, was shown. Every theater in town cooperated.

Thousands more heard speakers explain the hospitalization and medical care plans at meetings of the Business and Professional Women's Club, the Exchange Club and the Visiting Nursing Association and at special gatherings such as one arranged by the Yonkers *Herald Statesman* for the benefit of its employees.

The Yonkers Medical Care Committee, comprising prominent Yonkers residents and business men, was appointed by the common council of Yonkers to conduct the campaign with the cooperation of Associated Hospital Service of New York and United Medical Service, Inc., after a two year study of existing medical expense plans. All communications to the public and press were issued on specially prepared committee letterheads under the signature of the committee chairman.

MEDICAL EDUCATION AND LICENSURE

Forty-Second Annual Congress on Medical Education and Licensure, to be held in the Red Lacquer Room, Palmer House, Chicago, February 11 and 12, 1946

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS, AMERICAN MEDICAL ASSOCIATION

MONDAY MORNING, 9:30

RAY LYMAN WILBUR, M.D., *Presiding*

Address
RAY LYMAN WILBUR, M.D., Stanford University, Calif., Chairman of the Council on Medical Education and Hospitals

IMPACTS OF THE WAR ON MEDICINE

Medical Progress During the War
PERRIN H. LONG, M.D., Baltimore, Professor and Director of Department of Preventive Medicine, Johns Hopkins University School of Medicine

Medical Education in Europe
WILBURT C. DAVISON, M.D., Durham, N. C., Dean, Duke University School of Medicine

Affiliation of Veterans' Hospitals with Medical Schools
PAUL B. MAGNUSON, Washington, D. C., Director of Research and Education, Veterans Administration

Discussion led by C. SIDNEY BURWELL, M.D., Boston, and William S. Middleton, M.D., Madison, Wis.

Address
GEORGE F. LULL, M.D., Chicago, Associate General Manager, American Medical Association, Major General, U. S. Army.

MONDAY AFTERNOON—2:00

RAY LYMAN WILBUR, M.D., *Presiding*

GENERAL AND SPECIALTY PRACTICE

Problems in Specialty Practice
PAUL TITUS, M.D., Pittsburgh, President, Advisory Board for Medical Specialties

The Practice of General Medicine
WILLIAM A. O'BRIEN, M.D., Minneapolis, Director of Postgraduate Education, University of Minnesota Medical School

Discussion led by ALPHONSE M. SCHWITALLA, S. J., St. Louis.

MEDICAL EDUCATION AND RESEARCH

Federal Aid for Medical Research
KENNETH B. TURNER, M.D., New York, Member, Medical Advisory Committee on the Report of Dr. Vannevar Bush to the President

Research in Undergraduate Medical Education
DETLEV W. BRONK, Ph.D., Philadelphia, Director, Eldridge Reeves Johnson Foundation for Medical Physics, University of Pennsylvania School of Medicine

Protection of Animal Experimentation
A. J. CARLSON, M.D., Chicago, Temporary Chairman, Organizing Board of Directors, National Commission for the Protection of Medical Science

Discussion led by EWEN MACEWEN, M.D., Iowa City and JOSEPH C. HINSEY, Ph.D., New York

THE FEDERATION OF STATE MEDICAL BOARDS

MONDAY—6:30

FEDERATION DINNER

The People's Health—A National Asset
HON. WATSON MILLER, Washington, D. C., Administrator, Federal Security Agency.
Room Fourteen

TUESDAY MORNING—9:30

ADAM P. LEIGHTON, M.D., *Presiding*

Presidential Address
ADAM P. LEIGHTON, M.D., Portland, Maine, President, Federation of State Medical Boards

Why Require Graduates of Approved Medical Schools to Pass a Basic Science Board Examination?
H. M. PLATTER, M.D., Columbus, Ohio, Secretary, Ohio State Medical Board

Part III of the National Board Examination—Its Character and Purpose
J. STEWART RODMAN, M.D., Philadelphia, Medical Secretary, National Board of Medical Examiners

Recent Licensure Developments in Massachusetts
H. Q. GALLUPE, M.D., Boston, Secretary, State Board of Registration in Medicine

Licensure by Reciprocity or Interstate Endorsement
ROY B. HARRISON, M.D., New Orleans, Secretary, Louisiana State Board of Medical Examiners

Recent L[illegible] Medical Licensure
Mr. J. [illegible] rector, Bureau of Legal Medicine and [illegible] Association

TUESDAY—12:30

FEDERATION LUNCHEON
Room Nine

TUESDAY AFTERNOON—2:00

ADAM P. LEIGHTON, M.D., *Presiding*

Business Session—Reports of Officers—Reports of Committees—New Business

CENTRAL COUNCIL FOR NURSING EDUCATION

MONDAY, 12:15

LUNCHEON FOR LAY BOARDS OF HOSPITALS AND PUBLIC HEALTH NURSING ORGANIZATIONS

Community Planning for Health
MR. SAMUEL A. GOLDSMITH, Chicago, Chairman of Health Division of Council of Social Agencies of Chicago
Grand Ballroom

Official Notes

DR. LULL APPOINTED ASSOCIATE GENERAL MANAGER

Dr. George F. Lull, formerly deputy Surgeon General, United States Army Medical Corps, has been appointed Associate General Manager of the American Medical Association and began work in his new position on January 1.

Coming Medical Meetings

Annual Congress on Medical Education and Licensure, Chicago, Feb 11-12. Dr. Victor Johnson, 535 North Dearborn St., Chicago, Secretary.

Conference of State Secretaries and Editors, Chicago, Feb 8-9. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Association of Pathologists and Bacteriologists, Chicago, March 8-9. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Orthopsychiatric Association, New York, Feb 14-16. Dr. Nina Ridenour, 1790 Broadway, Room 916, New York 19, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, March 5-8. Dr. Warren W. Furey, 30 North Michigan Ave., Chicago 2, Secretary.

Southeastern Surgical Congress, Memphis, Tenn., March 11-13. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S. E., Atlanta 3, Georgia, Secretary.

Committee on Scientific Exhibit

MOTION PICTURES AND SLIDE FILMS ON HEALTH

Your Fight Against Infantile Paralysis. 16 mm., sound, motion picture. Running time 15 minutes.

This new motion picture shows the various methods being used in the treatment of the disease and some of the research going on for its prevention. It ends with a plea to continue these efforts. Further information may be obtained from the National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York 5.

Weathering the Storms. Slide film. 35 mm., sound, 17 minutes.

This is a picture for laymen, explaining psychoneurosis, its cause and its prevention. The picture is intended for civilians, emphasizing the fact that psychoneurosis is not a disease peculiar to military personnel. It is suitable for use by medical officers of the Army and Navy.

The film may be obtained on a free loan basis from agents of the Zurich Insurance Companies. Further information may be obtained from the Industrial Welfare Department, Zurich Insurance Companies, 135 South LaSalle Street, Chicago 3.

Medical Legislation

STATE LEGISLATION

Massachusetts

Bills Introduced.—S. 44 proposes to authorize the department of public health to investigate and study the causes of poliomyelitis, commonly called infantile paralysis, and the eradiation of such disease.

S. 45 proposes to authorize all duly registered physicians, on application, to practice in, and have his patients admitted to, any public or semipublic hospital, any hospital supported in whole or in part by contributions from the commonwealth, any city or town, or the public, or any hospital which solicits contributions for its support from the public.

S. 46, to amend the medical practice act, proposes the creation of a board of registration of chiropractors for the regulation, examination and licensing of such practitioners and defines chiropractic as "the science of locating, and removing, by hand only, interference with the transmission or expression of nerve force in the human body, where such interference is indicated or misalinement or subluxations of the vertebral column appear. It excludes operative surgery, prescription or use of drugs or medicine, or the practice of obstetrics, except that the x-ray may be used solely for the purposes of examination."

H. 57, to amend the law relating to patients in institutions under the supervision of the department of mental health, proposes that no restraint in the form of buckles, waist straps, anklets, etc., shall be imposed on any such patient unless applied in the presence of the superintendent, or of the physician or of an assistant physician of the institution, or on his written order, which shall be preserved in the files of the institution for a period of two years.

H. 74, to amend the law relating to bacteriologic laboratories, proposes to authorize the department of public health to grant certificates of approval for laboratory tests on milk, foods, eating utensils, water and sewage in accordance with such rules and regulations as the department may establish.

H. 76, to amend the hospital licensing law, proposes to include thereunder the operation of convalescent homes and nursing homes, defined as "any institution, whether conducted for charity or profit, which is advertised, announced or maintained for the express or implied purpose of caring for three or more persons, not acutely ill, admitted thereto for the purpose of chronic or convalescent care."

H. 78, to amend the law relating to the department of public health, proposes to authorize such department to conduct clinics for the diagnosis and treatment of patients ill with chronic disease.

H. 115 proposes the enactment of a voluntary system for the payment of hospital, surgical operation, sickness and bodily injury and maternity benefits to employees.

H. 117 proposes to punish any person who experiments or operates in any manner whatever on any living dog or cat for any purpose other than the healing or curing of said dog or cat.

H. 230, to amend the medical practice act, proposes to authorize the board of medical examiners to grant certificates of registration, without examination, to such persons as shall furnish with their applications satisfactory proof that they have the qualifications required in Massachusetts to entitle them to be examined and have been licensed or registered on a written examination in another state whose standards, in the opinion of the board, are equivalent to those in Massachusetts. The bill further proposes that no person shall be registered without an examination if he is a graduate of a medical school not approved by the approving authority.

H. 261, to amend the hospital lien law, proposes the creation of a lien in favor of any hospital receiving state aid or any hospital owned, operated or aided by a city or town on the proceeds of any insurance policy issued to the person alleged by the patient to be responsible for the accident.

H. 268, to amend the workmen's compensation law, proposes to authorize an injured employee to be treated by a physician of his own selection, the reasonable cost of such physician's services, including reasonable fees for testimony given at any hearing conducted by the industrial accident board, to be paid by the insurer.

H. 269, to amend the workmen's compensation law, proposes that fees of attorneys and physicians and charges of hospitals shall be paid by the insurer or self insurer.

H. 298, to amend the law regulating the practice of pharmacy, proposes to authorize the board and the commissioner of education to establish standards to be met by colleges of pharmacy and to grant certificates of approval to colleges meeting such standards as well as to revoke any certificate of approval previously issued to any college which lowers its standards below that established by the board and the commissioner.

H. 299, to amend the medical practice act, proposes that all persons who matriculated at the Middlesex University School of Medicine during the month of January 1941 and were duly graduated therefrom on July 24, 1944 and subsequently served as interns shall be eligible for examination and registration in medicine in the state.

Bureau of Information

SUMMARY SHEETS FROM TEXAS

Completed county summary sheets have been received from counties in Texas through Dr. Holman Taylor, secretary, State Medical Association of Texas.

The accompanying table gives data from selected counties in these states. The column giving the number of persons per telephone is used as one index of the economic status of the area.

Texas

County [1]	Principal Cities [2]	Population	Physicians Under 65	Persons per Physician	Persons per Telephone [3]
Bosque		12,030	6	2,005	14
Cooke		23,865	7	3,409	15
	Gainesville	9,651			
Crosby		11,606	2	5,803	57
Fayette		23,711	10	2,371	16
	LaGrange	2,531			
Gray		22,099	10	2,210	11
	Pampa	12,895			
Hidalgo		94,270	39	2,417	32
	McAllen	11,877			
	Edinburg	8,718			
	Mercedes	7,624			
Llano		4,328	2	2,164	7
	Llano	2,658			
Mitchell		11,532	3	3,844	16
	Colorado City	5,213			
Presidia		8,393	3	2,798	21
	Marfa	3,805			
Wichita		72,981	52	1,403	10
	Wichita Falls	45,112			
	Electra	5,588			
	Burkburnett	2,814			

1. Bureau of Census, estimated population 1943.
2. Bureau of Census, population 1940.
3. Based on 1940 figures, American Telephone and Telegraph Company.

Many physicians over 65 years of age are carrying on large practices and are doing much to maintain the health of communities. They are not included in computing physician population ratios, however, as the future needs of the communities will be largely dependent on younger physicians.

A current knowledge of needs of communities for doctors is essential if adequate help is to be given veteran medical officers in their problems of medical practice. These needs can be indicated on the summary sheets under "Remarks" by the state and county secretaries and are then available to inquiring medical officers. Frequent reports from state and county medical societies about needs of communities for doctors will help maintain current files and will increase the service of the Bureau.

With the information available on a completely filled out summary sheet, it is readily possible for an interested medical officer to make an initial selection of areas in which he might like to practice. Since vacancies are held open in many communities for doctors now in military service, further investigation by direct correspondence with state and county medical societies will always be necessary to insure an accurate report of the needs of individual communities.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Thomas Morgan Dies.—Thomas H. Morgan, Ph.D., professor emeritus of biology, California Institute of Technology, and in 1933 winner of the Nobel Prize for his research on heredity, died in Huntington Memorial Hospital, Pasadena, December 4, aged 79. Dr. Morgan won the Nobel Prize in medicine for his "discoveries relating to the heredity function of chromosomes."

The Reginald Knight Smith Lecture.—Dr. Max Pinner, New York, clinical professor of medicine, Columbia University College of Physicians and Surgeons, New York, will deliver the second Dr. Reginald Knight Smith Lecture on January 24 at the Mount Zion Hospital, San Francisco, sponsor of the lecture. The subject will be "Modern Trends in the Treatment of Pulmonary Tuberculosis."

DELAWARE

Personal.—Dr. Howard L. Reed has been appointed assistant medical director of the Hercules Powder Company, Dr. Lemuel C. McGee, Wilmington, Hercules medical director, announced on January 3. Dr. Reed has been medical director of the Hercules operated Sunflower Ordnance Works in Kansas for the past two years. Prior to that he was medical director of the Hercules operated Badger Ordnance Works in Wisconsin. Dr. Reed graduated at Duke University School of Medicine, Durham, N. C., in 1936.

ILLINOIS

County Health Department Operating.—The Cook County Department of Health is now functioning in accordance with action taken by the board of commissioners on Dec. 10, 1945. Since July 1, 1940 the public health unit had been operating within the department of public welfare. Under the new setup Dr. Edward A. Piszczek, Chicago, who had been director of the old unit, will continue in charge with the title of chief medical officer. The county organization now has the authority to develop its own regulations and to coordinate more closely the health activities in Chicago, Evanston, Winnetka and Kenilworth, which have their own units.

Chicago

Funds Released for Medical Center.—Governor Dwight H. Green recently released $641,000 to acquire property for the West Side Medical Center. The sum is part of $1,100,000 designated for the center and included in the state's postwar public works program.

Chemical Factors in Inflammation.—The School of Medicine of the University of Chicago sponsored a public lecture December 7 on "The Role of Chemical Factors in Inflammation." The lecturer was Dr. Valy Menkin, assistant professor of pathology, Duke University School of Medicine, Durham, N. C.

Health Service to Survey Chicago.—Dr. Frank V. Meriwether, director, district of the U. S. Public Health Service, announced December 19 that his office will begin a survey of Chicago health facilities on February 1. The study was requested by the Chicago Medical Society, the Institute of Medicine of Chicago and the health division of the Chicago Council of Social Agencies. Brig. Gen. James Thompson, U. S. Public Health Service, now stationed in Japan, will direct the project. It is estimated that from eight months to a year will be required to complete the work.

Personal.—Dr. Max Thorek recently received the civilian decoration of the Peruvian government, the "Order of the Sun." The presentation was made by Dr. Humberto Fernandez-Davilla, minister counselor of the embassy in Washington, in recognition of Dr. Thorek's contributions to surgical science.——Dr. Edward D. Allen has been appointed acting head of the department of obstetrics and gynecology at Presbyterian Hospital to succeed Dr. N. Sproat Heaney, who resigned and moved to Beverly Hills, Calif., where he has entered practice. Dr. Heaney became acting chairman of the department in 1921 and chairman in 1924.——Jon M. Jonkel has resigned as director of the department of public relations, American Hospital Association, effective January 5, to establish an organization specializing in the public relations problems confronting hospitals.

KENTUCKY

Woman Physician Honored.—Friends of Dr. Alice N. Pickett, Louisville, professor and executive of the division of obstetrics, have established the Alice Pickett Fund for Obstetrical Gynecology. The fund was set up to honor Dr. Pickett, who has been at the University of Louisville School of Medicine for many years, and to assist the school of medicine and hospital to obtain a full time head of the department of obstetrics and gynecology, to buy equipment and to provide funds for research.

Campaign Opened to Develop Rural Physician Program.—The plan of the Kentucky State Medical Association to set up a revolving fund of $50,000 to $75,000, to be designated a scholarship fund for medical students who agree to practice in country districts after graduation, was launched December 12 at a dinner. Dr. Carl C. Howard, Glasgow, author of the program, was unable to attend the meeting because of illness. Dr. Gaithel L. Simpson, Greenville, presided instead. The tentative plans for the scholarships call for the revolving fund. Ten students would be assisted annually on an estimated tuition of $550 and be required to practice in rural areas and repay the principal within ten years at nominal interest. The action to sponsor this program was planned at the recent annual meeting of the Kentucky State Medical Association (THE JOURNAL, Oct. 27, 1945, p. 642).

MASSACHUSETTS

Reginald Smithwick Named Professor at Boston University.—Dr. Reginald H. Smithwick, instructor in surgery at Harvard Medical School, Boston, has been appointed professor and chairman of the department of surgery at Boston University School of Medicine and surgeon in chief of the Massachusetts Memorial Hospitals. In his new position Dr. Smithwick, who graduated at Harvard in 1925, will continue and extend his investigations on the surgical treatment of hypertension and peripheral vascular disease.

Tufts Medical Alumni Lecture.—The annual Tufts Medical Alumni Lecture will be given on February 20 at the Tufts College Medical School, Boston, by Dr. Winthrop Adams, manager of the Veterans Administration Facility at Bedford. His subject will deal with the possibilities of a medical career with the Veterans Administration. Dr. Adams was recently appointed deputy surgeon general of one of the thirteen U. S. districts formed under the reorganization plan of the Veterans Administration. The district which Dr. Adams will head will have its center in Boston and will comprise seven hospitals, five regional offices and three hospitals yet unbuilt.

Fellowship for Advanced Research in Genetics or Mental Health.—Radcliffe College, Cambridge, invites application for the Helen Putnam Fellowship for Advanced Research in the general field of genetics or of mental health. The fellowship, carrying a stipend of $2,000 and covering a period of eleven months from October 1, is open to mature women scholars who have gained their doctorate or who possess similar qualifications and who have research in progress. Applications for the award must be submitted to Radcliffe College not later than April 1. All normal laboratory facilities will be provided to the winner of the Putnam Fellowship, whose appointment will be announced about May 1 by the committee on award.

Brigadier General Simmons New Dean of School of Public Health.—Brig. Gen. James S. Simmons, U. S. Army, chief, preventive medicine service, Office of the Surgeon General, has been appointed dean of the Harvard University School of Public Health, it was announced January 10. He is expected to take over the position July 1. The Rockefeller Foundation has granted $1,000,000 for expenses of the school of public health from July 1, 1946 to June 30, 1956, and Harvard University has set aside an additional sum of $750,000 as an endowment for the school to supplement the present endowment fund. In a reorganization intended to make this one of the foremost research and teaching institutions in the world, the school of public health will have coequal status in the university with the medical school and other professional divisions. In addition to its present marble building at 55 Shattuck Street, Boston, the school of public health will occupy Collis P. Huntington Memorial Hospital, which was used before the war for cancer and tumor research and during the war by the government for secret experiments. Acquisition of the hospital, which is to be remodeled, will give the school an additional 40,000 square feet of floor space. Founded in 1922 with the aid of a Rockefeller Foundation grant now known as the Henry P. Walcott Endowment Fund, the Harvard school of public health pioneered in special departments such as industrial hygiene and child health. Dr. Edward G. Huber is acting dean of the school of public health. Brigadier General Simmons, born in Newton, N. C., June 7, 1890, graduated at the University of Pennsylvania School of Medicine in 1915 and at the Army Medical School in 1917. He received a Ph.D. degree from George Washington University Medical School in 1934 and the degree of doctor of public health from the Harvard school of public health in 1939.

MICHIGAN

Personal.—Dr. Edward E. Dart, Chicago, recently physician in charge at Chrysler's Dodge plant in Chicago, has become chief of Chrysler's Industrial Hygiene Laboratory, Detroit, succeeding Dr. Lewis L. Kline.——Dr. Hugh L. Dill, Detroit, recently declined to be a candidate to succeed himself in the office of mayor of Grosse Pointe City. Dr. Dill had been mayor since February 1944, when the previous mayor died. He has served the city for eleven years as councilman and mayor.

Campaign Against Drug Store Prescribing.—The Michigan State Board of Health, in cooperation with the county prosecutors, the police and sheriffs' officers, is conducting a campaign to stamp out illegal medical practice by pharmacists, newspapers reported December 22. In a Detroit survey it was revealed that, in a third of 756 drug stores canvassed, pharmacists were willing to diagnose and prescribe remedies for venereal disease. The outstate survey of 242 stores showed that 40 per cent would perform similar service.

Secretaries' Conference.—The annual County Secretaries Conference of the Michigan State Medical Society will be held at the Wardell-Sheraton Hotel, Detroit, January 20. Among the speakers will be:

Dr. Robert L. Novy, Detroit, Progress Report on Michigan Medical Service.
Col. James C. Harding, M. C., Washington, Veterans Administration Plan for Michigan.
Dr. Louis F. Foster, Bay City, Uniform Fee Schedule for Governmental Agencies.
Dr. Earl I. Carr, Lansing, Michigan Foundation for Medical and Health Education.
Dr. George F. Lull, Chicago, Postgraduate Medical Education.
Dr. Edward J. McCormick, Toledo, Ohio, Medical Public Relations.

MISSOURI

The Terry Lecture.—Dr. Loyal Davis, professor of surgery, Northwestern University Medical School, Chicago, gave the annual Robert J. Terry Lecture before the St. Louis Medical Society, December 18. His subject was "Experimental and Clinical Investigations on Surgery of Peripheral Nerve Injuries."

Society Honors Laymen and Physicians.—Three laymen were honored recently by the Jackson County Medical Society for their interest in public health. A certificate of award went to each of the three men: to Mr. Homer H. Berger for his interest in the medical society and the development of the Blue Cross Hospital Service, of which he is the legal counsel, to Mr. Arthur B. Church, president of KMBC radio station for maintaining on the radio for over four years the program "health and happiness," presented each Sunday evening in cooperation with the society, and to Mr. Forrest F. Dodd, president of the Blue Cross Hospital Service, for the successful progress of that service. The Lay Honor Award originated in 1944, when the first award was presented to Mrs. Ruth A. Hirsch in tribute to her work in the development of the Jackson County Health Forum (THE JOURNAL, May 6, 1944, p. 73). The society also presented merit awards with the gold key of the society to Drs. Ambrose E. Eubank for his devoted interest and service to the society, to James R. McVay for service to the profession through his interest in medical education and legislation, and to Edward H. Skinner, all of Kansas City, for his direction and development of the society's library. Dr. Eubank and Dr. Skinner were not present to receive the awards, nor were Mr. Church and Mr. Dodds.

NEW HAMPSHIRE

University Physician Appointed.—On January 3 Major Walter E. Batchelder, who is on terminal leave from the army, began his activities as newly appointed physician and director of the health service of the University of New Hampshire, effective January 3. Dr. Batchelder graduated at the Boston University School of Medicine in 1939.

NEW YORK

Paul Brooks Retires.—Dr. Paul B. Brooks, Albany, deputy state commissioner of health, retired January 1 after thirty years of service on the staff of the state department of health. Dr. Brooks joined the state department of health in 1915, subsequently serving as district sanitary supervisor, acting director of the division of communicable disease and assistant director of laboratories and research. In 1923 he was named deputy commissioner. He has been secretary of the Chenango County Medical Society and the International Association of Milk Sanitarians, serving also as president of the latter.

Hospital and Medical School Cooperate in New Program.—The Genesee Hospital and the University of Rochester School of Medicine and Dentistry have agreed on a close working relationship, each institution to maintain its complete operating and administrative independence and the facilities of the two hospitals to be available to the teaching staff of each. A statement points out that though this is not a formal agreement the leadership in both institutions assumes the responsibility for the success of the project, which is patterned on the "very successful relationship that exists between the Massachusetts General Hospital and Harvard Medical School." To achieve a successful arrangement, the following recommendations were made:

That all directors of departments of the Genesee Hospital shall be appointed in the customary manner, that is, by the hospital's board of governors, with the advice of the advisory board of the school of medicine and dentistry.

The nonteaching members of the staff of all grades and in all departments of the Genesee Hospital shall be appointed in the customary manner by the board of governors on the recommendation of the director of each department and of the medical board.

That all the teaching members of the staff of all grades and in all departments of the Genesee Hospital shall be appointed in the customary manner by the board of governors on the recommendation of the director of each department and of the medical board, with the advice of the advisory board of the school of medicine and dentistry.

New York City

Meeting on Diabetes.—The New York Diabetes Association, Inc., will hold an open meeting at the New York Academy of Medicine, January 26. Dr. Charles H. Best, Toronto, Canada, will discuss "A Quarter of a Century in Medical Research" and "Factors Affecting Fat Transport in the Animal Body." Dr. Reginald E. Haist, Toronto, will talk on "Carbohydrate Metabolism in Traumatic Shock."

Hospital Provides Office for Returned Staff Members.—Sydenham Hospital is arranging to make available a fully equipped office for the use of its staff doctors while they are getting reestablished in practice on their return from military service. The hospital will provide the space, and the doctors who did not go to war will underwrite the equipment of the office and the provision of a nurse-secretary while the returning physicians find permanent quarters, and as the returning doctors become able to contribute to the secretarial cost they will be expected to do so. The hospital's dental clinic will be made available in a similar way to staff dentists back from war duties. The clinic is already fully equipped, according to the New York *Times*.

Walter Reed Chosen for Hall of Fame.—Dr. Walter Reed, noted for his work on yellow fever, was the only physician elected to the Hall of Fame for Great Americans on the campus of New York University recently. The physician was one of four famous men who were chosen by a vote of 93 distinguished men and women who comprised the "College of Electors" from a field of 130 candidates nominated by the public. The election brings to 77 the number of historical figures chosen for the honor of a place in the Hall of Fame since it was founded in 1900 by the late Chancellor Henry Mitchell MacCracken. Dr. Reed is the first member of the medical profession to be chosen because of his contribution to medical knowledge and the first alumnus of the New University College of Medicine to receive this distinction. He died in 1902. The recent election was the tenth quinquennial election. In addition to Dr. Reed, who was elected, seven other physicians were named as nominees:

William Beaumont (1785-1853), discoverer of the physiology of digestion.
William T. H. Bellamy (1844-1911), physician, surgeon.
Elizabeth Blackwell (1821-1910), first American woman medical graduate.
Reginald Heber Fitz (1843-1913), discoverer of appendicitis.
William Crawford Gorgas (1854-1920), noted for work on yellow fever.
Ephraim McDowell (1771-1830), distinguished surgeon.
Benjamin Rush (1745-1813), physician and signer of the Declaration of Independence.

PENNSYLVANIA

Pittsburgh

Nu Sigma Nu Lecture.—Dr. John R. Paul, professor of preventive medicine, Yale University School of Medicine, New Haven, will give the first lecture in a new lectureship recently established by the Nu Sigma Nu Medical Fraternity, University of Pittsburgh School of Medicine. Dr. Paul will speak January 23 on "Infectious Hepatitis."

VIRGINIA

New Professor of Pharmacology.—Dr. Chalmers L. Gemmill, associate professor of physiology, Johns Hopkins University School of Medicine, Baltimore, and for the past four years on leave of absence as commander in the Medical Corps, U.S.N.R., in charge of aviation medical research at the Naval Air Station, Pensacola, Fla., has been appointed professor of pharmacology at the University of Virginia Department of Medicine, Charlottesville, succeeding the late Dr. James A. Waddell.

Changes in Health Officers.—Dr. John G. McNiel, Bristol, has been named health officer of the Southside Health District, effective October 26. Dr. Willard W. Griggs, Newport News, has been named health officer of the Page-Warren-Shenandoah Health District, effective November 1. Dr. John C. Sleet has resigned as health commissioner of Norfolk. Dr. Albert L. Chapman, Wrightstown, N. J., U. S. Public Health Service, has been assigned to succeed Dr. Henry B. Hoff as assistant health commissioner. Dr. Hoff plans to enter private practice in Pennsylvania. In his new position Dr. Chapman will be eligible to serve as acting health commissioner on Dr. Sleet's resignation. Dr. James M. Suter, Bristol, has returned to service with the Virginia Department of Health as health officer of the Smyth-Washington-Bristol Health District, effective December 6. Dr. Frederick C. Heath, Laureldale, Pa., has been appointed health officer of the Giles-Montgomery-Radford Health District, with headquarters at Christiansburg, effective January 1.

WEST VIRGINIA

Uniform Procedures for Aid in Tuberculosis.—A change in the method of determining eligibility for state aid to tuberculous patients requiring sanatorium care and pneumothorax refills has been announced by Dr. Robert L. Smith, Charleston, acting director of the bureau of tuberculosis control. The new procedure, which will permit a more equitable consideration of cases and which will systematize fiscal handling, is in line with the provisions of a cooperative arrangement recently made by Dr. John E. Offner, Weston, state health commissioner, with the department of public assistance, which provides for the latter to supply social and financial information concerning the families of patients. Details of the new program will be handled by Mr. Charles W. Rogers, formerly of New Martinsville, who will have headquarters in the bureau of tuberculosis control in Charleston. Mr. Rogers, who is a trained social worker, will serve in a liaison capacity between the bureau, local health departments, offices of the DPA and tuberculosis sanatoriums. Physicians who have tuberculous patients needing sanatorium care, the cost of which they are unable to meet themselves, will fill out and sign an application for admission to a state sanatorium. This application may be signed by a county health officer if a physician has not been in charge of the case. The application is to be presented to the local DPA by the patient or by a responsible representative. An investigator for the department will then complete a certified report concerning family income and expenses and will forward the report to the bureau of tuberculosis control, which will determine eligibility for state aid. No delay will be occasioned when the families of patients are already known to DPA workers. Persons eligible for state aid will be certified to a sanatorium, and the patient will be advised when to report for hospitalization. A person found ineligible for a state subsidized bed will have his application returned, and he may then submit it directly to the sanatorium by agreeing to pay the required fee of $1 a day per patient. When a state aid patient is discharged from the sanatorium with the approval of the medical staff, recommended pneumothorax refills may be paid for out of state funds. The patient himself selects a physician who is qualified under the standards adopted by the public health council, and a pneumothorax referral is forwarded to the bureau of tuberculosis control, which in turn transmits an authorization for treatment to the doctor. Pneumothorax refills are not paid for when a patient leaves a sanatorium without official permission. Patients who are already paying for sanatorium treatment and care may apply for state aid through a county health officer if he later becomes unable to continue such payments, and this application is processed under the same method provided for consideration of original applications for state aid.

GENERAL

Society News.—The Central States Dermatological Society will meet at the Harper Hospital in Detroit, April 27. Dr. Clarence E. Reyner, Henry Ford Hospital, Detroit, is secretary.——The next annual meeting of the American Urological Association will be held at the Netherland Plaza Hotel, Cincinnati, July 22-26.——The Medical Library Association will hold its annual meeting at Yale University, New Haven, Conn., March 25-27.

Clinical Fellowships in Medicine Nearly Exhausted.—The clinical fellowships in medicine offered by the American College of Physicians to provide further training for returning veteran medical officers are nearly exhausted. Because of the large number of applications on hand and pending, no further applications will be accepted by the Office of the Educational Director, 4200 Pine Street, Philadelphia 4, after February 1.

Committee on Deaf-Blind.—Announcement was made recently of the formation of the Helen Keller Committee on the Deaf-Blind as a department of the American Foundation for the Blind, 15 West 16th Street, New York 11. The objectives of the new committee are to:

Improve educational methods for the deaf-blind on an individual basis to provide greater self resourcefulness, thus compensating for limited contacts with others.

Find a shorter and more rapid manual language to speed communication with family and friends.

Obtain greater vocational opportunities for the deaf-blind in workshops for the blind and in private industry.

Increase the social relationships of the deaf-blind by developing special activities for them and by devising ways to permit them to participate in usual recreations.

Special Society Elections.—Dr. Robert V. Seliger, Baltimore, was reelected president of the Medical Correctional Association at its annual meeting in New York, November 15-16. Other officers are Dr. Frank J. Curran, New York, and Dr. Michael J. Pescor, Springfield, Mo., vice presidents, and Robert M. Lindner, Ph.D., Baltimore, secretary-treasurer. The Medical Correctional Association is an affiliate of the American Prison Association.——At the annual meeting of the American Society of Tropical Medicine in Cincinnati, November 13-15, Brig. Gen. James S. Simmons, Washington, D. C., was inducted into the presidency, Dr. Edward I. Salisbury, New York, was chosen president-elect, Dr. Joseph S. D'Antoni, New Orleans, vice president, and Dr. Norman H. Topping, Bethesda, Md., secretary-treasurer.

Orthopedic Surgery Meeting.—The thirteenth annual meeting of the American Academy of Orthopaedic Surgeons will be held at the Palmer House, Chicago, January 19-23, under the presidency of Dr. Eugene B. Mumford, Indianapolis. Among the speakers will be:

Drs. Alfred W. Adson, Henry H. Young and Ralph K. Ghormley, all of Rochester, Minn., Combined Neurectomy and Bone Graft in Spastic *Torticollis*.
Dr. Joseph A. Freiberg, Cincinnati, Arthrodesis of the Hip, Brittain type.
Dr. Edward L. Compere, Chicago, Treatment of Congenital Dislocation of the Hip.
Capt. Samuel B. Fowler, M. C., Mobilization of the Metacarpophalangeal Joints—Arthroplasty and Capsulotomy.
Major James V. Luck, M. C., Psychologic Problems Observed in Military Orthopedic Surgery.
Dr. Jean Verbrugge, Antwerp, Belgium, Factors Influencing Bone Repair in Open Reductions of Fractures.
Dr. George O. Eaton, Baltimore, Overseas Treatment of Compound Fractures of the Long Bones.
Lieut. Col. Harry C. Blair, M. C., and Major Harry D. Morris, M. C., Conservation of Short Amputation Stumps by Utilization of Tendon Section.
Dr. Duncan C. McKeever, Houston, Texas, Cellophane in Reconstructive Orthopedic Surgery.

Grants for Research in Endocrinology.—The committee on research in endocrinology, National Research Council, wishes to announce that requests for grants-in-aid during the fiscal period from July 1, 1946 to June 30, 1947 will be received until Feb. 28, 1946. Application blanks may be obtained by addressing the secretary, Division of Medical Sciences, National Research Council, 2101 Constitution Avenue, Washington 25. In addition to a statement of the problem and research plan or program, the committee desires information regarding the proposed method of attack, the institutional support of the investigation and the uses to be made of the sum requested. No part of any grant may be used by the recipient institution for administrative expenses. The committee makes grants in aid of research in the general field of experimental and clinical endocrinology. However, applications for support of research in the problems of sex in the narrower sense cannot be given favorable consideration, and investigators seeking support in this field should direct their proposals to the committee for research in problems of sex of the National Research Council. The committee on research in endocrinology, however, will continue to give consideration to the support of studies of the effect of sex hormones on nonsexual functions, e. g. on general metabolism and on the metabolism of steroid hormones.

College of Surgeons Resumes Sectional Meetings.—The American College of Surgeons announces the resumption in 1946 of its sectional meetings, which during the war were replaced by one day war sessions. Ten two day meetings are planned, to begin in Minneapolis, with headquarters at the Radisson Hotel, on January 28-29. Other meetings will be:

Hotel Jefferson, St. Louis, January 31-February 1.
Tutwiler Hotel, Birmingham, February 8-9.
William Penn Hotel, Pittsburgh, March 11-12.
Statler Hotel, Boston, March 18-19.
Mount Royal Hotel, Montreal, March 22-23.
Statler Hotel, Detroit, March 26-27.
Utah Hotel, Salt Lake City, April 8-9.
Multnomah Hotel, Portland, Ore., April 12-13.
Biltmore Hotel, Los Angeles, April 17-18.

The medical profession at large, medical students and hospital executives are invited to join with the fellows of the college in these meetings. Separate meetings are planned each morning and afternoon for hospital personnel, with joint luncheon sessions on both days and a dinner meeting on the first evening. The programs for the medical profession begin at 8:30 each morning with the showing of medical motion pictures followed by scientific sessions. Scientific sessions will also be held each afternoon. The dinner on the first evening will be followed by a forum on graduate training in surgery. Among the subjects scheduled for discussion at the meetings for the medical profession are the treatment of infection by chemotherapy and the antibiotics; injuries to the bile ducts; preoperative and postoperative supportive treatment; treatment of open wounds; treatment of osteomyelitis; management of advanced cancer; the care of the veteran, and the reconversion period in the practice of medicine. The hospital conferences will be devoted to discussion of high standards for postwar hospitals, approached from the standpoint of administration, professional services and care of different types of patients. Headquarters of the American College of Surgeons are in Chicago. Dr. Irvin Abell, Louisville, is chairman of the board of regents; Dr. William E. Gallie, Toronto, is president, and Dr. Malcolm T. MacEachern and Dr. Bowman C. Crowell, both of Chicago, are associate directors.

HAWAII

Varied Nationalities Represented in Society.—Mrs. Edith C. Bennett, executive secretary of the Hawaii Territorial Medical Association, on December 12 reported that within its membership of 251 the Honolulu County Medical Society has 67 doctors of Japanese, 41 of Chinese, 5 of Korean, 1 of Hawaiian and 137 of European descent. Doctors representing this diversity of origin not only are members but occupy important official positions. The chairman of the program committee, for instance, is Dr. Samuel L. Yee, Honolulu, of Chinese extraction. The man in charge of public relations is Dr. Homer M. Izumi Kula, of Japanese extraction. Joseph Lam, of Chinese extraction, is a member of the board of governors.

Plantation Physicians Hold Meeting.—New officers of the Territorial Association of Plantation Physicians, elected during a meeting in Honolulu November 9-11, are Dr. Paul H. Liljestrand, Aiea, Oahu, president, Dr. William D. Balfour, Wailuku, Maui, vice president, and Dr. Marvin A. Brennecke, Waimea, Kauai, secretary-treasurer. Among the speakers were:

Major Orlando S. Koepsel, M. C., Corpus Christi, Texas, *Proper Handling of Incised Wounds, Lacerations and Cut Tendons.*
Major Norris L. [illegible] [illegible]iti, *Some Unknown Factors in Producing* [illegible]
Dr. Brennecke, [illegible] *Compared with the Kaiser Hospitals.*
Dr. Alvin C. Dougan, Honolulu, *New Developments in the Field of Mechanics and Electronics by Plantation Doctors.*

Medical Society Donates Textbooks to Philippine University.—In a move to supply badly needed medical textbooks to the University of the Philippines College of Medicine, Manila, members of the Honolulu County Medical Society have donated nearly a thousand volumes from their personal libraries, according to John D. Williams, navy correspondent. The plea for medical books and periodicals was raised by Lieut. Comdr. George F. Hoppe of Squadron VR-11, Naval Air Transport Service, who has been voluntarily gathering books of every description for the Philippine educational system. In his one man campaign to arouse interest Lieutenant Commander Hoppe, a former Minnesota school superintendent, suggested the need of medical textbooks to Dr. Morton E. Berk, Honolulu. Members of the Honolulu County Medical Society were invited to donate any of their unused textbooks or periodicals. Lieutenant Commander Hoppe gathered the medical volumes and dispatched them to the Medical School of the University of the Philippines aboard NATS planes not fully loaded for flight.

PUERTO RICO

Proposed Malaria Control.—The Department of Health of Puerto Rico will carry out a malaria control program during the fiscal year 1945-1946 costing $435,000, according to Act 323 of 1945 passed by the Insular Legislature. The island has been divided into five districts for the purpose of this malaria control program. Home treatment of malaria cases will be performed by sixty public health aids in these districts. The appropriation for this project is $77,600. Control of malaria by means of larvicides and drainage will be continued at San Juan, Santurce, Rio Piedras, Arecibo, Fajardo, Ponce, Villalva, Juan Diaz, Santa Isabel, Salinas, Guaynabo, Arroyo and Patillas. Plants for the construction of drainage pipe and warehouses will be constructed at Ponce, Salinas, Santa Isabel, Juan Diaz, Villalva and Guayama. The utilization of DDT as a residual insecticide will be carried out on the rural area of Santa Isabel, with cooperation of the U. S. Public Health Office. One principal engineer and one entomologist will supervise the drainage projects at Santa Isabel and Ponce. The largest of these projects is the one to be established at Ponce, second largest city on the island, with an appropriation of $103,900.

Government Services

Grants-In-Aid Recommended by Cancer Council

Eight federal grants-in-aid totaling $42,040.94 to further the study of cancer have been recommended by the National Advisory Cancer Council. The two largest grants, $10,000 each, will go to Washington University School of Medicine, St. Louis, for a study of the effect of radioactive phosphorus on leukemia, polycythemia vera and various malignant diseases, and to Memorial Hospital for the Treatment of Cancer and Allied Diseases in New York City for metabolic studies in patients with gastric cancer. Other grants will include $4,700 to the University of Minnesota Medical School, Minneapolis, for a study directed at identifying "precursor groups" of patients in whom cancer of the stomach is developing; $5,000 to Yale University School of Medicine, New Haven, for a study of steroids and enzymes in cancer; $3,600 to the University of Southern California School of Medicine at Los Angeles for a study of chemical characterization of split protein products from the blood of cancer patients; $2,640.94 to Jeanes Hospital in Philadelphia for a study of variations of the Golgi apparatus in human neoplastic diseases; $1,100 to Meharry Medical College, Nashville, for a continuation of investigations and follow-up work at the George W. Hubbard Hospital, and $5,000 to Syracuse University College of Medicine for chemotherapeutic studies in cancer. The National Advisory Cancer Council was created by Congress to advise the Surgeon General of the Public Health Service on all phases of cancer. One of its duties is to review and make recommendations on applications from institutions and individuals for grants-in-aid for cancer research. Applications for grants were few in number during the war, but it is expected that they will increase rapidly as scientists are released from the armed forces and from research projects connected with the war effort. Members of the National Advisory Cancer Council are Dr. James B. Murphy, director of cancer research, Rockefeller Institute for Medical Research, New York; A. Baird Hastings, Ph.D., professor of biologic chemistry, Harvard University; Dr. George M. Smith, Pine Orchard, Conn., director, Anna Fuller Fund, Yale University Medical School; Dr. Sherwood Moore, director, Edward Mallinckrodt Institute of Radiology, Washington University School of Medicine, St. Louis; Dr. Frank E. Adair, New York, president of the American Cancer Society and executive officer of Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, and Dr. Andrew C. Ivy, professor of physiology, Northwestern University Medical School, Chicago.

Deaths

Frederick Cook Warnshuis ⊕ for twelve years speaker of the House of Delegates of the American Medical Association, was found dead January 7 at his home in Windsor, Ontario, aged 65.

Dr. Warnshuis was born in Alton, Iowa, June 16, 1880. He graduated at Hope College, Holland, Mich., and took his degree at the Grand Rapids Medical College in 1902. Dr. Warnshuis had served as president and secretary of the Kent County Medical Society and as secretary of the Michigan state board of medical registration. He was named secretary of the Michigan State Medical Society in 1913, becoming editor of its journal a few years later. In 1934 he resigned both positions to join the California Medical Association as secretary-treasurer and director of public relations. In 1938 he became president of the newly organized American Medico-Legal Association and editor in chief of its journal, with headquarters in Boston. In 1941 he went to the American Consulate in Windsor as acting assistant surgeon, U. S. Public Health Service.

His service with the American Medical Association included membership in the House of Delegates in 1913-1914, 1916, 1918 and from 1920 to 1934. He was Vice Speaker of the House from 1920 to 1922 and Speaker from 1922 to 1934.

During World War I, Dr. Warnshuis was chief and later commanding officer of the Surgical Service, Base Hospital number 99, American Expeditionary Forces.

Fred Gordon Johnson ⊕ Iron River, Wis.; Rush Medical College, Chicago, 1900; born in Oregon, Wis., June 30, 1872; an Affiliate Fellow of the American Medical Association; life member of the State Medical Society of Wisconsin; twice president of the Ashland-Bayfield-Iron Counties Medical Society; served as president of the district medical society, nine years a councilor of the state society, seven years a preceptor of the University of Wisconsin Medical School and a collaborator in establishing and conducting the first tuberculosis sanatorium in Wisconsin; in 1939 was presented with the fifteenth annual Council Award of the State Medical Society of Wisconsin for outstanding work and devotion to duty; died in St. Francis Hospital Superior, September 2, aged 73, of intestinal obstruction.

Joseph Lloyd Warne ⊕ Pottsville, Pa.; Jefferson Medical College of Philadelphia, 1908; born in Nanticoke, Pa., on April 18, 1885; first vice president of the Medical Society of the State of Pennsylvania; fellow of the American College of Surgeons; medical director, founder and owner of the Lemos B. Warne Hospital, which he established in 1932, presenting it to the community on Feb. 1, 1945 as a memorial to his wife; awarded a certificate of meritorious award by Governor Edward Martin in recognition of services to his community; at one time chief surgeon at the Pottsville Hospital; president of the Pottsville Industries, Inc.; member and past president of the chamber of commerce; died October 8, aged 60, of coronary occlusion.

Renos Harlan Richards, Patricksburg, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1903; born Sept. 8, 1876; member of the American Medical Association; member of the state house of representatives; served as president of the Owen County Medical Society and as county coroner and treasurer of Owen County; first lieutenant, medical corps, Indiana National Guard, 1910-1915; captain in the medical corps on the Mexican border, 1916-1917; major in the medical corps, American Expeditionary Forces, in France during World War I; lieutenant colonel, medical reserve corps, U. S. Army, not on active duty; died in the Robert W. Long Hospital, Indianapolis, September 9, aged 69, of coronary occlusion.

Howard Allison McKnight ⊕ Springfield, Ohio; University of Pennsylvania School of Medicine, Philadelphia, 1910; born in Philadelphia, Dec. 31, [illegible]; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; past president of the Clark County Medical Society; served during World War I; at one time on the faculty of the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania, and associate professor of surgery at the Woman's Medical College of Pennsylvania, Philadelphia; on the staff of the Springfield City Hospital, where he died October 7, aged 60, of lymphosarcoma of the retroperitoneal glands.

Leonidas M. Stokes ⊕ Walterboro, S. C.; Medical College of the State of South Carolina, Charleston, 1906; born in 1879; past president and vice president of the South Carolina Medical Association; served as president of the Colleton County Medical Society and as a member of the board of medical examiners; formerly medical director of the Charles Es'Dorn Hospital; presented with a silver service in 1939 by the alumni association of the Medical College of the State of South Carolina in recognition of his services in the securing of new buildings for the medical college, which he served as a member of the board of trustees; died September 23, aged 66, of polycythemia vera.

William Hopton Smith ⊕ Goldsboro, N. C.; University of Pennsylvania Department of Medicine, Philadelphia, 1906; born in Goldsboro, N. C.; May 29, 1882; served as president of the state board of medical examiners; served as president and director of the North Carolina Tuberculosis Association; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; vice president of the Medical Society of North Carolina, of which he had been an honorary member; member of the Southern Medical Association; on the staff of the Goldsboro Hospital; died September 29, aged 63, of relapsing virus pneumonia.

Charles Wilson Mills ⊕ Tucson, Ariz.; Johns Hopkins University School of Medicine, Baltimore, 1908; born in South Williamstown, Mass., September 1, 1879; specialist certified by the American Board of Internal Medicine; member of the American College of Chest Physicians and the American Clinical and Climatological Association; fellow of the American College of Physicians; chief of visiting staff, Desert Sanatorium and Institute of Research; member of the courtesy staff, St. Mary's Hospital and Sanatorium; chairman, medical advisory board, Arizona Selective Service; died September 29, aged 66, of coronary occlusion.

Robert George McAliley ⊕ Atlanta, Ga.; Johns Hopkins University School of Medicine, Baltimore, 1912; associate professor of pediatrics at the Emory University School of Medicine; specialist certified by the American Board of Pediatrics, Inc.; served during World War I; on the staffs of the Emory University, Grady and Crawford Long Memorial hospitals; joint author of "Diseases of the Respiratory System in Infants and Children" (Clinical Pediatrics); died in the Walter Reed General Hospital, Washington D. C., September 15, aged 66, of bacterial endocarditis.

Norman Barkan, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1945; intern at the Mount Sinai Hospital, where he died September 28, aged 23.

Wallace Linn Brittain ⊕ Conway, Ark.; University of Arkansas School of Medicine, Little Rock, 1928; chief of staff at the Conway Memorial Hospital; died September 4, aged 41.

William Edgar Buck, Randolph, Mass.; Medical School of Maine, Portland, 1914; member of the American Medical Association; died in the Milton (Mass.) Hospital September 15, aged 58.

Otto Charles Christmann, Seattle; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; member of the American Medical Association; secretary-treasurer of the Seattle Academy of Surgery; part time epidemiologist in the venereal disease division of the city health department during World War II; served on the staffs of the Columbus, Doctors and Harborview County hospitals; died December 9, aged 63, of coronary disease.

Roy Oscar Cooley ⊕ West Palm Beach, Fla.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1909; past president of the Palm Beach County Medical Society; served during World War I; served as chief of staff of the Good Samaritan Hospital, as chairman of the Palm Beach County Chapter of the American Red Cross and as president of the Rotary Club; died in a hospital at Asheville, N. C., October 3, aged 59, of cerebral hemorrhage.

Arthur Howard Davison, Milton, Mass.; Harvard Medical School, Boston, 1902; member of the American Medical Association; served on the staff of the Milton Hospital; medical director of the Boston Mutual Life Insurance Company and president of the Codman Cooperative Bank of Dorchester; died in the New England Baptist Hospital Boston September 26, aged 71, of carcinoma of the stomach.

Chester Hyman Fairchild, Woodland, Calif.; Cooper Medical College, San Francisco, 1906; member of the American Medical Association; fellow of the American College of Surgeons; on the staff of the Woodland Clinic Hospital, where he died September 6, aged 74.

Russell Milton Farnham, Glendale, Calif.; University of Minnesota Medical School, Minneapolis, 1922; president of the Glendale Branch of the Los Angeles County Medical Association in 1931; served overseas during World War I; interned at the Children's Hospital in Los Angeles; member of the board of directors of the Physicians and Surgeons Hospital; died September 11, aged 53.

Henry Sall Fischer, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1918; member of the American Medical Association; fellow of the American College of Surgeons; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; on the staff of the Beth Moses Hospital; died in the Beth David Hospital, September 21, aged 50.

Robert Joseph Flynn ⊕ Scranton, Pa.; Jefferson Medical College of Philadelphia, 1916; served overseas during World War I; for many years attached to the regional Veterans Bureau; for a time surgeon for the city police department, chief physician for the city gas and water company and deputy coroner; on the staff of the Scranton State Hospital, Mercy Hospital and St. Mary's Hospital, where he died September 28, aged 49, of cirrhosis of the liver.

John Fisher Gainer ⊕ Danville, Ill.; University of Illinois College of Medicine, Chicago, 1922; assistant in surgery from April to September 1922 at his alma mater; on the staffs of the Lakeview and St. Elizabeth hospitals; died October 21, aged 48, probably of coronary thrombosis.

Dewell Gann Sr. ⊕ Benton, Ark.; Southern Medical College, Atlanta, 1886; at one time vice president of the Arkansas Medical Society; president of the Saline County Medical Society; surgeon for many industrial plants and four railroads in Benton; died September 25, aged 82.

Robert S. Garnett, Tacoma, Wash.; Georgetown University School of Medicine, Washington, D. C., 1903; member of the American Medical Association; died in St. Joseph Hospital September 29, aged 68, of cerebral hemorrhage.

Frederick Christian Gerlach ⊕ San Jose, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1894; served during World War I; physician for the University of Santa Clara; died in the O'Connor Sanitarium October 4, aged 74, of heart disease.

Oramel E. Haney, Portland, Maine; Medical School of Maine, Portland, 1903; member of the American Medical Association; served during World War I; on the staffs of the Maine General Hospital and the Maine Eye and Ear Infirmary; died September 4, aged 68, of coronary thrombosis.

Henry Harmon, Pontiac, Mich.; Chicago Homeopathic Medical College, 1889; died October 29, aged 82, of cerebral hemorrhage.

Wayne Pearson Harrison ⊕ New York; University of Vermont College of Medicine, Burlington, 1928; specialist certified by the American Board of Ophthalmology; on the staff of the New York Eye and Ear Infirmary; died October 20, aged 49, of heart disease.

Benjamin Woodward Hazell, Baltimore; Maryland Medical College, Baltimore, 1905; died October 3, aged 73, of arteriosclerotic cardiovascular disease.

Charles Stephen Hoover, Cleveland Heights, Ohio; Western Reserve University Medical Department, Cleveland, 1901; served during the Spanish-American War and World War I; died in the University Hospitals, Cleveland, October 7, aged 69, of cardiovascular disease and probably coronary occlusion.

Alexander George Hough ⊕ Beaver Dam, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1905; served several terms as secretary of the Dodge County Medical Society; councilor of the first district of the State Medical Society of Wisconsin; served during World War I; died in St. Joseph's Hospital September 26, aged 75, of diabetic gangrene.

Orlan T. Hughes, Lexington, Ky.; University of Louisville Medical Department, 1909; member of the American Medical Association; died September 23, aged 63, of hypertensive heart disease.

John Hynds, Buffalo, Wyo.; University Medical College of Kansas City, Mo., 1908; served during World War I; formerly medical examiner for the Chicago, Burlington and Quincy Railroad; died August 2, aged 65, of chronic encephalitis lethargica.

Robert Moore Johnston, Ocoee, Fla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; served one term as mayor of Ocoee; for eight years engaged in missionary work in West Africa; died September 18, aged 74, of heart disease.

Robert DuVal Jones Jr. ⊕ Norfolk, Va.; University of Pennsylvania School of Medicine, Philadelphia, 1924; member of the Southern Society of Clinical Surgeons; interned at the Robert Packer Hospital in Sayre, Pa.; formerly fellow in surgery at the Mayo Foundation and assistant resident surgeon at St. Mary's Hospital, both of Rochester, Minn.; affiliated with the Leigh Memorial Hospital; died in a hospital at Winston-Salem, N. C., September 5, aged 46.

Demeter Kalinoff ⊕ Stillwater, Minn.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; attending physician at the Minnesota State Prison from 1903 to 1935; on the staff of the Lakeview Memorial Hospital; died in the Miller Hospital, St. Paul, September 15, aged 74.

William R. Knabe ⊕ Orleans, Mass.; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1903; member of the Medical Society of the State of New York; died September 10, aged 66.

Wladyslaw August Kuflewski, Chicago; College of Physicians and Surgeons of Chicago, 1894; fellow of the American College of Surgeons; past president of the city public library board and past vice president of the board of education; for many years served as chief medical examiner of the Polish National Alliance; since 1902 chief surgeon of the Second Regiment of the Illinois National Guard; senior attending surgeon, St. Mary of Nazareth Hospital, where he died October 23, aged 75, of cerebral hemorrhage.

Alexander Kulchinsky, Chicago; Chicago College of Medicine and Surgery, 1916; died in the Columbus Hospital October 13, aged 77.

William Theodore Langley, Sanford, Fla.; Medical College of Alabama, Mobile, 1899; member of the American Medical Association; served overseas during World War I; at various times city and county physician; died September 11, aged 69, of cerebral hemorrhage and hypertension.

Hartland Law, San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1893; died September 27, aged 87, of coronary thrombosis.

Stuart Johnston Lawson, New London, Conn.; University of Virginia Department of Medicine, Charlottesville, 1905; member of the American Medical Association; on the staff of the Lawrence and Memorial Associated Hospitals; died September 8, aged 65.

Sidney Harold Levy ⊕ Buffalo; University of Buffalo School of Medicine, 1915; member of the Radiological Society of North America, Inc.; served during World War I; died in the Buffalo City Hospital September 22, aged 52, of bronchopneumonia and Parkinson's disease.

Jesse Herbert Libby ⊕ Weymouth, Mass.; Harvard Medical School, Boston, 1892; an Affiliate Fellow of the American College of Surgeons; served as a member of the school committee; on the staff of the South Shore Hospital, where he died September 25, aged 78, of arteriosclerosis and bronchopneumonia.

James Williamson Maloy, Rhine, Ga.; Hospital Medical College, Eclectic, Atlanta, 1911; died September 1, aged 60.

Albert Brown McKee ⊕ Redwood City, Calif.; Cooper Medical College, San Francisco, 1886; clinical professor of surgery (ophthalmology) emeritus at the Stanford University School of Medicine; died in Woodside August 19, aged 82, of heart disease.

Francis Joseph McMenamin ⊕ Oneonta, N. Y.; Long Island College Hospital, Brooklyn, 1907; on the staff of the Aurelia Osborn Fox Memorial Hospital, where he died October 2, aged 65, of coronary thrombosis.

James A. McVeigh, Detroit; Medical College of Ohio, Cincinnati, 1896; for many years physician for the city health department; associated with the Ford Motor Company Medical Center; died in the Henry Ford Hospital October 3, aged 73, of carcinoma of the liver.

Charles Price Mercer, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1891; formerly assistant medical inspector for the bureau of health; on the staff of the Stetson Hospital; died in the Episcopal Hospital September 19, aged 80, of bronchopneumonia and heart disease.

James Charles Millman, Platteville, Wis.; Northwestern University Medical School, Chicago, 1893; died October 9, aged 84, of myocardial failure.

Arthur Hugh Montgomery ⊕ Montgomery, Ala.; Atlanta Medical College, 1898; served as city physician; died in St. Margaret's Hospital October 5, aged 72, of coronary thrombosis.

William Edward Mulcahy, Boston; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1912; died September 2, aged 61.

Brian Francis Patrick Murphy, Baltimore; Georgetown University School of Medicine, Washington, D. C., 1943; interned at the Union Memorial Hospital; served as a fellow in pathology at the Johns Hopkins Hospital; died September 10, aged 30.

Henry Akin Nesbitt, Clarksville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1900; died September 23, aged 77, of cancer.

Alonzo Bond Persley, Detroit; University of Michigan Medical School, Ann Arbor, 1915; served during World War I; died in the Harper Hospital September 19, aged 54, of an old coronary thrombosis.

George Trecise Polk, Pittsburgh; Albany (N. Y.) Medical College, 1917; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; in transport service during World War I; formerly on the staff of the Brooklyn Eye and Ear Hospital and consulting otolaryngologist at the Matteawan State Hospital, Beacon; on the staff of the Shadyside Hospital; died September 6, aged 50, of heart disease.

Russell Lee Pope, Richmond, Ky.; University of Louisville School of Medicine, 1932; member of the American Medical Association; president of the Pope Hospital, where he died October 14, aged 37, of injuries received in an automobile accident.

Lucien Griggs Rice ⊕ Albuquerque, N. M.; New York University Medical College, 1898; Cornell University Medical College, New York, 1899; past president of the New Mexico Board of Medical Examiners; on the staffs of the Presbyterian and St. Joseph's hospitals; died October 2, aged 70, of coronary thrombosis.

Thomas Duncan Robertson ⊕ The Dalles, Ore.; University of Oregon Medical School, Portland, 1930; member of the American Society of Clinical Pathologists; member and formerly president of the state board of health; formerly secretary of the Oregon State Medical Society; at one time on the staff of St. Vincent's Hospital in Portland; associated with The Dalles Clinic; died September 15, aged 42, of bronchopneumonia.

Benjamin D. Satek ⊕ Chicago; Chicago Medical School, 1917; for many years connected with the city department of health; died October 7, aged 62, of cerebral hemorrhage.

Charles Bushfield Schildecker ⊕ Pittsburgh; Columbia University College of Physicians and Surgeons, New York, 1901; served for a time as coroner's physician; for many years on the staff of the Western Pennsylvania Hospital, where he died November 12, aged 68, of coronary occlusion.

Harvey Frederick Scholl ⊕ Prospect Park, Pa.; Jefferson Medical College of Philadelphia, 1893; for many years school physician; on the staff of the Taylor Hospital, Ridley Park, where he died October 7, aged 74, of acute nephritis.

Walter Preston Scott, Lexington, Ill.; Keokuk (Iowa) Medical College, 1898; died in the Mennonite Hospital, Bloomington, September 16, aged 80, of a fractured hip received in a fall.

Ulysses Sheridan Short ⊕ St. Louis; St. Louis University School of Medicine, 1903; active on the council and past president and secretary of St. Louis County Medical Society; served in France during World War I; died October 18, aged 67, of cirrhosis of the liver and gastroenteritis.

Charles Elmer Shultz, Castle Shannon, Pa.; Maryland Medical College, Baltimore, 1911; member of the American Medical Association; served on the staff of the Southside Hospital in Pittsburgh; died in the Allegheny General Hospital, Pittsburgh, September 29, aged 64.

George Albert Sihler Sr. ⊕ Litchfield, Ill.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1883; since 1890 a member of the board of directors and since 1907 vice president of the First National Bank; for many years a member of the board of directors of the grade school; instrumental in establishing the city water department; died October 24, aged 83, of lymphosarcoma.

Richard Clyde Sinclair, Pine Lawn, Mo.; Washington University School of Medicine, St. Louis, 1933; first lieutenant, medical reserve corps, U. S. Army, not on active duty; died September 21 in the Missouri Baptist Hospital, St. Louis, aged 37, of bilateral lobar pneumonia, following an accident in which he incurred a fracture of the lumbar vertebra.

John Henry Slevin, Detroit (licensed in Michigan in 1901); member of the American Medical Association; fellow of the American College of Surgeons; served during World War I; deputy collector of internal revenue; member of the consulting staff of the Grace Hospital, where he died September 18, aged 73, of carcinoma of the esophagus.

David M. Sloan, Sturgis, Ky.; Louisville Medical College, 1898; member of the American Medical Association; past president of the Union County Medical Society; served on the staffs of Our Lady of Mercy Hospital, Morganfield, and the Sturgis Hospital, where he died October 10, aged 74, of uremia.

Charles Gregory Smith, Cincinnati; Eclectic Medical Institute, Cincinnati, 1890; formerly on the faculty of his alma mater; died in the Bethesda Hospital September 3, aged 75, of cerebral hemorrhage.

Henry Spence ⊕ Jersey City, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1892; fellow of the American College of Surgeons; past president of the state department of health; served as a member of the city board of health; member of the consulting staff of the Christ Hospital and the Margaret Hague Maternity Hospital; died in the Jersey City Medical Center November 22, aged 79.

William Albert Spencer ⊕ Wolcott, Ind.; Michigan College of Medicine and Surgery, Detroit, 1901; died October 3, aged 73.

Woodson Washington Spicer, Calhoun, Ky.; Louisville and Hospital Medical College, 1908; member of the American Medical Association; served as secretary-treasurer of the McLean County Medical Society; on the examining board of the Selective Service; died in the City Hospital, Owensboro, September 26, aged 65, of heart disease.

Robert Edward Sproule, St. Petersburg, Fla.; University of Dublin School of Physic, Trinity College, Dublin, Ireland, 1883; served in the medical corps of the British navy during World War I; died October 12, aged 88.

Gilbert H. Stannard ⊕ Sheboygan, Wis.; Milwaukee Medical College, 1904; past president of the Sheboygan County Medical Society; affiliated with the Sheboygan Memorial Hospital, where he died September 4, aged 69, of coronary thrombosis.

Daniel Freeman Stough Sr., Geary, Okla.; Illinois Medical College, Chicago, 1898; member of the American Medical Association; honorary member of the Oklahoma State Medical Association; served as a member and president of the school board, city treasurer and as mayor of Geary; died September 6, aged 70, of cerebral hemorrhage.

Peter Harold Sunde ⊕ Beverly Hills, Calif.; Jenner Medical College, Chicago, 1901; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; died October 8, aged 68.

Otto H. Swantusch ⊕ Angola, Ind.; Fort Wayne College of Medicine, 1905; served during World War I; died October 13, aged 61, of chronic myocarditis.

Annabel Cleveland Test, Chicago; Northwestern University Woman's Medical School, Chicago, 1895; died in the Passavant Memorial Hospital October 7, aged 74.

Bennie Everette Vowell, Carthage, Miss.; University of Tennessee College of Medicine, Memphis, 1914; member of the American Medical Association; died October 17, aged 52, of abscess of the lungs.

Rogers Fairbanks Wakefield, Pasadena, Calif.; University of Michigan Medical School, Ann Arbor, 1924; member of the American Medical Association; interned at the Los Angeles General Hospital in Los Angeles, where he had been a resident physician; member of the Los Angeles Dermatological Society; died September 2, aged 45, of coronary thrombosis.

Anthony T. Walsh ⊕ Scranton, Pa.; Baltimore Medical College, 1902; on the staff of St. Mary's Hospital; served during World War I; died October 12, aged 69, of coronary disease.

Harry Goldsborough Watson, Elmhurst, N. Y.; Yale University School of Medicine, New Haven, Conn., 1898; died in the Lenox Hill Hospital, New York, October 1, aged 76, of carcinoma of the rectum.

John Walter Webb ⊕ Indianapolis; Chicago Homeopathic Medical College, 1904; a member of the state board of medical examiners; on the staff of the Methodist Hospital; died October 9, aged 64, of coronary thrombosis.

Walter J. Werfelmann Sr., Syracuse, N. Y.; Syracuse University College of Medicine, 1890; member of the American Medical Association and the Syracuse Academy of Medicine; died September 2, aged 76, of carcinoma of the stomach.

Frank H. Westerschulte, Chicago; Rush Medical College, Chicago, 1895; died October 17, aged 79, of coronary thrombosis.

William Arthur Williamson, Duffee, Miss.; Mississippi Medical College, Meridian, 1907; killed October 26, aged 74, when struck by a freight train.

Charles Edwin Woods, Fitchburg, Mass.; Dartmouth Medical School, Hanover, N. H., 1890; member of the American Medical Association; past president of the Worcester North District Medical Society; served as school physician in Lunenburg and trustee of the Ritter Library; died in the Burbank Hospital October 12, aged 82, of bronchopneumonia.

Albert A. Yungblut ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1903; died August 21, aged 73.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 15, 1945.

Fundamental Principles for the National Health Service

Though the government bill for a national health service has not yet been presented to Parliament, there is much controversy both in the lay and in the medical press. The negotiating committee of the medical profession, which is composed of representatives of the British Medical Association, the Royal Colleges of Physicians, Surgeons, Obstetricians and Gynecologists, the Royal Scottish Medical Corporations, the Society of Medical Officers of Health and the Medical Women's Federation, has agreed to certain fundamental principles of the medical profession, which should not be infringed on by any government proposals. With these conditions the profession should find no difficulty in working out a national health service in cooperation with the government.

For a quarter of a century the medical profession has stressed the need for a complete health service. It is willing and anxious to cooperate with the government in evolving this service, for its knowledge and experience are indispensable to success. It emphasizes that good housing and social, economic and environmental circumstances are the principal factors in maintaining health and preventing disease. It urges the expansion of medical research. In the interests of the public and of medicine the profession regards the following principles as essential: 1. In the public interest the profession is opposed to any form of service which leads directly or indirectly to the profession as a whole becoming full time salaried servants of the state or the local authority. 2. The profession should remain free to exercise the art and science of medicine according to its traditions, standards and knowledge; the individual doctor should retain full responsibility for the care of the patient and freedom of judgment, action, speech and publication without interference in his professional work. 3. The citizen should be free to choose or change his family doctor, to choose, in consultation with him, the hospital at which he should be treated, and free to decide whether he uses the public service or obtains independently the medical service which he needs. 4. Doctors should, like other workers, be free to choose the form, place and type of work they prefer without government or other direction. 5. Every doctor should be entitled to participate in the public service. 6. The hospital service should be planned in natural hospital areas centered at universities in order that these centers of education and research may influence the service. 7. There should be adequate representation of the medical profession on all administrative bodies.

Driving an Automobile While Under the Influence of Insulin

In 1930 a law was enacted making it an offense to drive a car while under the influence of drink or drugs to such an extent as to be incapable of proper control of the vehicle. The drugs concerned in the legislation were chiefly morphine and cocaine. The possibility of a diabetic motorist being charged with the offense of driving while under the influence of insulin was not considered. Such a case has occurred, and the man was convicted. A fine of $10 was imposed, and his driving license was suspended for a year. The man had not eaten his normal midday meal on the day of the accident. During the afternoon he felt tingling in the fingers and took a lump of sugar. He felt tired and decided to drive home. He thought that he drove normally and did not remember the accident. An appeal was made against the sentence. His lawyer argued that there was no proof of the unlawful influence of a drug. The motorist was right in taking insulin on medical advice and was not under the influence of the drug but of insufficient food. Medical evidence was given that insulin is a drug and the judge held that the motorist had rightly been convicted. As he was entirely blameless in the matter, he did not deserve punishment. The judge therefore dismissed the case under the Probation of Offenders Act and restored the license.

The Food Problem of India

The report of the Famine Commission of India appointed by the government is based on the principle that the state must recognize its ultimate responsibility to provide enough food for all, not only to prevent famine, but to insure a healthy and vigorous population. However, some people would regard the continued increase of an already dense population as an insuperable obstacle. The population of India has increased by 100 million since 1880, and a further addition to this number must be expected in another twenty-five years. Ultimately, the report states, the rate of growth will have to be decreased. To this end the commission envisages emigration to the more sparsely settled parts of the British commonwealth and empire and the encouragement of family limitation. The diet of most of the population is unbalanced, containing too little of protective foods, such as legumes, meat, fish and vegetables. Perhaps 30 per cent of the people do not have enough of both energy building and protective foods. The poorer classes, both urban and rural, could not afford a balanced diet, even if it was available. A long term policy should have the objective of self sufficiency in cereals, the basic food of the country, with control of their price. To balance the cereals the production of legumes, vegetable oils and fruits must be increased, and potatoes, sweet potatoes and platains should be grown in great quantity.

SWEDEN

(From Our Regular Correspondent)

Stockholm, Nov. 30, 1945.

Dextran

The Swedish press became incensed recently when it learned that some American physicians had stated that the Swedes had developed a new "miracle" blood substitute, called dextran, and were refusing to give out any information about it until a world patent had been acquired. A denial has now been issued saying that this is entirely false. According to Professor Arne Tiselius of Uppsala, in whose laboratory the blood substitute has been developed, there has been a definite misunderstanding. The substance dextran is well known, so there can be no question of the patenting of an "invention" in the usual sense. Dextran is a blood substitute which was developed two years ago in Uppsala and for fourteen months has been tried out clinically in hospitals in the cities of Stockholm and Örebro. Used in place of blood plasma at St. Göran's Hospital in Stockholm, it has been chiefly beneficial in cases of severe burns. Although the Swedish physicians have not yet dared to replace plasma with dextran entirely, it is hoped that the results of present experiments will warrant this shortly. In severe cases they have generally used equal parts of plasma and dextran and have been able to cure several patients whose entire bodies were covered with burns. During July and August alone, 6 patients with one fourth of their bodies severely burned by denatured alcohol were completely healed. In cases of shock, dextran has also shown excellent results. It is hoped that this new preparation will shortly be released to hospitals throughout the country.

Successful Action Against False Advertising Claims

In 1941 a bureau was established in Sweden to scrutinize all the advertising of "free drugs," i. e. drugs sold without prescription. This institution has contributed greatly to correcting all such advertising. A report has recently been published of its activities during 1944 in the daily and weekly press throughout the country. The cooperation of the press has been excellent.

Criticism was made against one or more advertisements of sixty-one "patent" medicines. The advertisements in 36 instances were corrected immediately and discontinued in 21. It was not necessary to take action against the advertisers. Generally, advertisers now ask for bureau approval before sending advertisements to the newspapers or before using them as labels or in packages as instructions. Most of the texts that have been corrected were not exaggerated or false but gave a misleading impression.

The bureau has also successfully dealt with direct or indirect publicity of merchandise such as food, reducing preparations and diet cures as well as electrical apparatus for rheumatism and arthritis. Nor has there been much difficulty with enclosures in packages or window displays. It has rarely been necessary to threaten any company or individual with denial of the use of the press.

Rare Diseases Found in Sweden

Leprosy has to all intents and purposes disappeared from Sweden, for as far as is known there are only 6 persons afflicted with the disease in the entire country. Four of them suffer from lepra anesthetica, 1 from lepra tuberosa and 1 from lepra mixta. Two of these cases were diagnosed as late as 1941 and 1944, and most of the patients are well advanced in age. Sweden's leprosarium was discontinued in 1940, so 5 of the patients are being cared for in their own homes and 1 at a home for the aged.

Another disease which Sweden has been free from for many years is spotted fever. A few cases have appeared recently, but there is no fear that it will reach epidemic proportions. A communication to doctors and others in health work has advised them of the problems which this strange (for Sweden) illness presents.

Tuberculosis in Oslo During the War

Despite the occupation of Norway and the extremely difficult living conditions throughout the war, a recent investigation of tuberculosis in Oslo during the war years has shown that there was no increased spread of this infection. It is assumed, perhaps justifiably, that this is the result of the intense campaign carried on by the Oslo Board of Health before and during the war. Although no increased spread of infection could be proved, since 1941 there has been a rather considerable increase in the morbidity of pulmonary tuberculosis. Men have been the most frequent victims, and a higher age group has been attacked. The average age of infection has changed from 10 to 15 years to the 25 to 30 age group and even higher. Simultaneously the morbidity and mortality have greatly decreased in childhood and youth and shifted to the older age groups.

New Course for Physicians

Ninety school physicians from all parts of Sweden had a rather unusual meeting in Stockholm recently. It was the opening of the first state course in school hygiene ever held here for doctors. Since there are about 900 school physicians in Sweden, the 10 per cent that attended may be considered a good representation. The questions discussed during the week's course included school hygiene, school food and the problem of too large classes. Until recent years only about 40 per cent of the children in elementary school have had proper care. It was not until 1943 that a director was appointed to coordinate the work for the entire country. This first course for school physicians is considered promising for the present and future care of the health of children in grammar schools.

MOSCOW

(From Our Regular Correspondent)

Nov. 28, 1945.

Soviet Conference on Hypertensive Diseases

A conference on hypertensive diseases, the first since the war, was held recently in Gorkiy. The conference was attended by a large number of Soviet physiologists, pathologists, internists, neuropathologists and surgeons. The agenda contained a number of urgent problems, such as pathogenesis, symptomatology, treatment and prophylaxis of hypertensive states and problems of experimental hypertension. Professor Lang of Leningrad read a paper on etiology and pathogenesis of hypertensive disease. The paper dealt with modern concepts of hypertension, hypertensive states and hypertensive diseases which occupy an important place among disorders of the central nervous system. Professor S. S. Vail, colonel of the Red Army Medical Service, Leningrad, read a paper on pathomorphology of hypertensive disease. He showed that hypertension causes injuries principally to blood vessels of the heart (57 per cent cases), less frequently to those of the brain (26 per cent) and still less to blood vessels of the kidney (8.5 per cent). In his histopathologic studies he established the significance of damage to the nuclei and fibers of the vegetative nervous system. Some original data concerning changes in basic argyrophil substances in hypertensive states were presented by A. I. Smirnova Zamkova, corresponding member of the Ukrainian Academy of Sciences at Kiev. Argyrophil substances are important in the human organism, and many disorders of the nervous and vascular systems are related to the changes in argyrophil membrane.

Professor Smirnova Zamkova showed a number of photomicrographs demonstrating changes in argyrophil substances in preparations of the heart, large blood vessels, liver and lungs obtained from human beings suffering from hypertensive disease and from rabbits in which the pressor nerves had been removed. Professor N. I. Gorev of Kiev discussed his research on experimental hypertension obtained by interrupting the activity of the pressor nerves in rabbits and in dogs. Original experiments on the role of a hypertensive factor were reported by Professor D. E. Alpern, corresponding member of the Ukrainian Academy of Sciences. He showed that in sensitized animals spinal fluid acquires clearly defined properties which cause contraction of blood vessels. Professor A. M. Gruenstein read a paper on neurologic syndromes in hypertensive disorders and on the treatment of headaches. Headaches which occur in hypertensive disease, he believes, are due to cerebral edema, which frequently is caused by the dilatation rather than by constriction of the blood vessels, by paresis and not by a spasm, by lowering rather than by increasing the vascular tonus. Professor B. F. Zelenin, member of the Academy of Medical Sciences, discussed modern methods of treatment and prophylaxis of hypertensive disease, especially the social measures that have been adopted. Professor Zelenin pointed to the effectiveness of night sanatoriums for sufferers from hypertension. These were organized in 1942 and 1943 during the siege of Leningrad. Professor L. I. Vogelsohn of Moscow reported on the prognosis of work disability and work provisions for sufferers from hypertensive disorders. He presented data provided by a detailed study of a large group of patients on the reaction to labor processes in peace and war.

Professor N. N. Priorov, scientist and deputy peoples commissar for health, and Professor V. V. Parin, secretary of the Academy of Medical Sciences, were present at the conference.

BRAZIL

(From Our Regular Correspondent)

RIO DE JANEIRO, Nov. 30, 1945.

Incidence of Amebiasis and Giardiasis in Rio de Janeiro

Dr. J. Lopes Pontes has just published a paper in which he reports the results of his investigations on the incidence of parasitism by Endameba histolytica and Giardia intestinalis in the population of the city of Rio de Janeiro. For this purpose he has studied 165 individuals, 62 of whom were patients of the Misericordia General Hospital with medical or surgical diseases of the circulatory, respiratory, digestive, urogenital or muscular systems, and 103 healthy persons taken at random among industrial workers, office clerks and officers and workers in the government printing office. The specimens of feces have been examined by the Faust zinc concentration and fluctuation method. Besides Endameba and Giardia, other less pathogenic parasites, such as Ameba coli, have been searched for. Of 165 people 57 have been found positive to Ameba coli, or 34.5 per cent (30.6 per cent among hospital patients and 38.8 per cent among healthy persons), 19 have been found positive to Endameba histolytica, or 11.5 per cent (12.9 per cent among hospital patients and 10.8 per cent among healthy persons) and 19 have been found positive to Giardia intestinalis, or 11.5 per cent (4.8 per cent among hospital patients and 15.6 per cent among healthy persons). Of the 19 carriers of Endameba 14, or 78.9 per cent, showed pathologic disturbances which might have been related to the intestinal infestation. None of them have ever suffered from typical dysentery. Of the 19 positive cases of parasitism from Giardia 15, or 78.9 per cent, were silent carriers of the parasite. Discussing the question of Endameba histolytica carriers, the author emphasizes the frequency of pathogenic symptoms, although atypical, and the almost constant presence of lesions of the colon. These persons should really be considered potential patients. Treatment to eradicate the Endameba is necessary from the standpoint of the individual and the community. Of 18 foodhandlers 2 have been found to be carriers of Endameba cysts. Dr. Pontes points out that the influence of the intestinal flora and the local and general resistance of the host are factors which explain the symptomatic graduation of human.amebiasis.

Bacteriologic Postmortem Investigation

At the Instituto Oswaldo Cruz of Manguinhos at Rio Drs. Guilherme Lacorte and Mário Santos did bacteriologic studies on the blood and spleen in 145 necropsies. The cultures were positive in 67 cases, and in 46 cases the isolated bacteria were the proved or probable cause of disease. The presence of bacteria in the blood and the spleen implies bacteremia at the time of death, according to the observations of Hunt and his co-workers. In the authors' cases the presence of bacteria in these two sites was related to anatomic lesions of bacterial origin. When the bacteria were present only in the spleen, bacteremia probably was not present at the time of death. In rare cases bacteria were isolated from the lesions and not from the blood and spleen. Bacteriologic examinations at necropsy may be able to establish the diagnosis of obscure and unnoticed infections.

Brief Items

At the Brazilian Academy of Sciences of Rio de Janeiro Dr. Carlos Foa, associate professor of physiology at the University of São Paulo, presented a film entitled "The Conditioned Reflexes in the Formation of Human Personality," an invaluable gift from the Russian physiologist Pavlov.

A new hospital for children, the Casa da Criança, has been opened at Cuiabá (population 57,000) in the state of Matto Grosso. The new institution is connected with the Matto Grosso state department of health.

Dr. Genival Londres has been appointed medical superintendent of the Misericordia Hospital of Rio de Janeiro. Dr. Londres is a leading practitioner of cardiology in this city. He succeeds Dr. Paulo Cesar de Andrade. Dr. Iseu de Almeida e Silva has been appointed head of the department of surgery of the Misericordia Hospital. Dr. Silva was one of the principal assistants of Dr. Paulo Cesar de Andrade in that department.

Personal

Dr. Oscar Riddle of the Carnegie Foundation, Washington, D. C., is now in Rio de Janeiro. He has given lectures at the auditorium of the Moncorvo Filho Hospital and at the Brazilian Academy of Sciences on "Some Aspects of the Estrogens" and on "Endocrine Organs and Human Constitution."

Dr. Antonio Maltez has been appointed professor of gynecology at the Medical School of Salvador in the state of Bahia. He succeeds Dr. Aristides Maltez, his father, who was a distinguished gynecologist in that city.

Dr. Austregesilo Filho, associate professor of clinical neurology at the University of Rio de Janeiro, has recently been elected a member of the National Academy of Medicine of Rio de Janeiro, where he succeeds Dr. Artidonio Pamplona. At the weekly meeting Dr. Austregesilo Filho read a paper on "Tuberous Sclerosis and Neurodiaplasia."

Dr. A. Lourenço Jorge, professor of surgery at the School of Medical Sciences of Rio de Janeiro, was honored at a meeting held by many physicians of this city because of his election to the Brazilian Academy of Military Medicine.

Dr. Carlos R. de Morais has been appointed professor of otorhinolaryngology at the Medical School of Salvador, in the state of Bahia. He succeeds his father, Dr. A. Rodrigues de Morais.

Dr. Augusto Brandão has just completed twenty-five years as professor of surgery at the Rio de Janeiro University. Several ceremonies took place on this occasion at the Santa Casa hospital, at the Brazilian College of Surgeons and at the University to honor Dr. Brandão. Dr. Augusto Paulino, Dr. Joaquim Britto, Dr. Arnaldo de Moraes and Dr. Genival Londres spoke at the ceremonies conveying to Dr. Brandão the commendation and applause of the Brazilian physicians for the valuable work he has done as a professor at the university and as a leader of modern surgery in Brazil.

Marriages

WILLIAM A. HERATH, Joliet, Ill., to Miss Marvis Ludeman of Elmore, Minn., at Wheaton, Ill., September 15.

NELSON MONTGOMERY SMITH, Winchester, Va., to Miss Catharine Lee Palmer of Urbanna, October 11.

ARTHUR FLETCHALL WOODWARD, Washington, D. C., to Miss Beth Harding of Kilmarnock, Va., August 25.

DOCTOR ERNEST WARD JR., Durham, N. C., to Miss Sara Dockery Henry of Lumberton, October 27.

THOMAS O. WHELESS, Louisburg, N. C., Miss Lois Brown of Rocky Mount in Atlanta, September 1.

WARREN JUSTIN TAYLOR to Miss Marjorie Marian Hutchins, both of Hanover, N. H., September 15.

ALEXANDER RUSH, West Chester, Pa., to Miss Carol MacD. Smith in Bryn Mawr, September 15.

LE ROY M. A. MAEDER, Philadelphia, to Miss Albertine M. Reichle of Detroit, November 11.

EDWARD N. ROBERTS, Pocatello, Idaho, to Miss Montez Kennedy of Lawton, Okla., August 5.

STUART HODGES WALKER, New York, to Miss Frances Marie Taylor in Atlanta, March 10.

HOWARD V. ZEIGEL to Miss Eleanor Mae Nelson, both of Cleveland, Miss., October 12.

Correspondence

AN EARLY OBSERVATION ON PENICILLIN

To the Editor:—Considering the interesting nature of the subject, it is a curious fact that those who have written about the discovery and development of penicillin have overlooked the report of a pioneer investigator.

The selective bacteria-inhibiting property of the mold Penicillium was observed and described by the physicist John Tyndall in the year 1875. His communication to the English Royal Society was published in part one of the *Philosophical Transactions* for 1876.

In section 7 of his essay on "Optical Deportment of the Atmosphere in Relation to Putrefaction and Infection" he relates:

> Adjacent to the closed cases was placed a series of three exposed tubes, containing a liquid prepared in precisely the same way. On the 4th of October the exposed tubes were all turbid, and swarmed with *Bacteria*. In two of the tubes they were distinctly more numerous and lively than in the third. Such differences between sensibly conterminous tubes, containing the same infusion, are frequent. On the 9th, moreover, the two most active charged tubes were in part crowned by beautiful tufts of *Penicillium glaucum*. This expanded gradually until it covered the entire surface with a thick tough layer, which must have seriously intercepted the oxygen necessary to the bacterial life. The *bacteria* lost their translatory power, fell to the bottom and left the liquid between them and the superficial layer clear. [The opinion that a pellicle destroyed subjacent bacteria by depriving them of oxygen had been expressed by Pasteur.]
>
> Another difference pointing to differences in the unseen life of the air, was shown by these tubes. The turbidity of the two mould-crowned ones was colourless, exhibiting a grey hue. The third tube, the middle one of the three, contained a bright yellow-green pigment, and on its surface no trace of mould was to be seen. It never cleared, but maintained its turbidity and its bacterial life for months after the other tubes had ceased to show either. It cannot be doubted that the mould-spores had fallen into this tube also, but in the fight for existence the colour-producing *Bacteria* had the upper hand. Six other tubes, similarly exposed, showed the grey muddiness: all of them became thickly covered with mould, under which the *bacteria* died or passed into a quiescent state, fell to the bottom, and left the liquid clear.

In section 25 of the dissertation he reports:

> The mutton [infusion] in the study gathered over it a thick blanket of *Penicillium*. On the 13th it had assumed a light brown colour, "as if by a faint admixture of clay"; but the infusion became transparent. The "clay" here was the slime of dormant or dead *Bacteria*, the cause of their quiescence being the blanket of *Penicillium*. I found no active life in this tube, while all the others swarmed with *Bacteria*.

In section 26 of his memoir Tyndall describes the cultural characteristics of "three different kinds of penicillium" and notes:

> The same absence of uniformity was manifested in the struggle for existence between the *Bacteria* and the *Penicillium*. In some tubes the former were triumphant; in other tubes of the same infusion the latter was triumphant.

One could say of Tyndall what Helmholz said of Thomas Young, "His idea lay buried and forgotten in the folios of the Royal Society until a new generation gradually made the same discovery." Tyndall, however, achieved fame as a physicist while still living and the University of Tübingen awarded him the degree of M.D. (honoris causa) in recognition of other contributions to medical knowledge.

RUSSELL F. MADDREN, M.D., Hackensack, N. J.

THE PETIT MAL EPILEPSIES

To the Editor:—In Dr. Lennox's article on the petit mal epilepsies, which appeared in the Dec. 15, 1945 issue of THE JOURNAL, he rightfully points out the close relationship between the pyknolepsies and the petit mal epilepsies. Dr. Jelliffe and I had come to the same conclusion as far back as 1935, when we reported our findings in the April issue of the *Archives of Neurology and Psychiatry* (**33:**752). At that time we had reviewed all the cases of pyknolepsy reported in the literature and added our own observations.

JOHN NOTKIN, M.D., Poughkeepsie, N. Y.

TREATMENT OF BLACK WIDOW SPIDER BITE

To the Editor:—On page 1016 of the issue of Dec. 8, 1945 there appears an article on treatment of the bite of a black widow spider which exemplifies an overzealous search for symptoms with an apparent lack of consideration for the comfort of the patient.

The most elementary knowledge of therapeutics would indicate treatment, the first suggested by Osler's Practice, which has been satisfactory to both the patient and myself during an experience extending over forty years of practice in a Southern rural region. One-fourth grain (0.016 Gm.) of morphine, repeated as necessary, will afford relief, and nature will do the rest. The statement that "six and one-half hours after the bite the patient still showed no sign of having obtained relief," while they had, probably in desperation, given one-half grain (0.032 Gm.) of codeine sulfate, suggests a prejudice against narcotics which is difficult for a country practitioner to understand. I frequently give even a child one-half grain of codeine, but I use the phosphate—it's soluble.

R. E. HALE, M.D., Bellamy, Ala.

Bureau of Investigation

SOME MISCELLANEOUS MEDICAL FRAUDS

A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following is an abstract of one such order:

Diamonex Company.—This Chicago concern carried on a mail-order business in the sale of a product called "Diamonex." This, it represented, would, when used as directed, "safely, quickly and completely overcome distressing and dangerous symptoms" and "effect a satisfactory reduction in high blood pressure, regardless of the failure of previous treatment, however lengthy, or of the seriousness of the connected ailment." The nostrum was advertised in periodicals of national circulation and through written and printed matter sent through the mails. One claim called the product the "discovery of a heart specialist," another "the private formula of a recognized heart specialist" which "has been tested clinically for several years . . . at a hospital," and still another assertion was that "results are speedy—within as short a time as two weeks sufferers often find that Diamonex has accomplished 75% of the total reduction possible with this formula." There was also included in the circular matter something entitled "Extract from report of clinical investigation on Diamonex," but since no source was given for the controls, this naturally means nothing. Of course, there were the usual testimonials and a money-back guaranty. An investigation of the scheme by the Post Office Department culminated in a hearing held in Washington in February 1944, at which one Martin Coughlin and an attorney were present to represent the Diamonex Company. The attorney was sworn as a witness, but did not testify. One government witness was a chemist of the Food and Drug Administration, who testified that his analysis of Diamonex tablets did not materially differ from the formula printed on the label, showing the presence of sodium nitrite, aminophyllin and carbromal. Two Senior Medical Officers of the same federal agency testified that high blood pressure is the result of various causes, some of which are as yet unknown; that proper scientific diagnosis of the condition calls for thorough physical examinations, X-rays and laboratory tests, so that the cause of each case may be ascertained and removed if possible, and that there is no single therapy which could be used scientifically in all cases of the condition, since they require highly individualized treatment. They testified, further, that of the three declared ingredients of Diamonex, sodium nitrite is known as a vasodilator, aminophyllin as a stimulant, and carbromal as a sedative; that the first-named, though capable of dilating some blood vessels, does not affect the particular ones causing the high blood pressure, those known as arterioles, and hence is useless in treating the condition, as well as objectionable in that it interferes with the proper functioning of the kidney; that aminophyllin, though a stimulant and a dilator as well, is of no value in treating hypertension, and either does nothing further for the condition or raises the pressure by the extra load which it puts on the heart, and that the third ingredient, carbromal, is not present in Diamonex in sufficient amount to produce sleep, will not relieve sleeplessness, restlessness or nervousness, or be of any value in treating hypertension. The Diamonex concern replied through its attorney's brief that the representations made in its literature as to the product's effectiveness in treating high blood pressure did not justify the charges made against it by the Post Office Department, but a review of the advertising showed this claim to be invalid. On May 25, 1944, the Post Office Department issued a fraud order debarring the Diamonex Company and its officers and agents from the mails.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Drunkenness: Probative Value of Chemical Tests Showing Nonintoxication Is Question for Jury.—The plaintiff, Dashiell, sued for damages to his automobile resulting from a collision with one of the defendant's busses, the collision allegedly having been caused by the negligent operation of the bus. From a judgment in favor of the plaintiff, and an order denying defendant's motion for a new trial, the defendant appealed to the court of appeals of Georgia, division number 2.

At the trial the defendant contended, among other things, that the plaintiff was under the influence of intoxicating liquor at the time of the accident. This the plaintiff denied, although he admitted to having taken two or three social drinks of whisky during the evening prior to the accident. To rebut defendant's contention further, however, the plaintiff offered the testimony of Lieutenant Sackett, a chemist at Camp Wheeler. The witness qualified as an expert by stating his long experience in laboratory work and in the laboratory department of Camp Wheeler, Georgia. He testified that he had performed a blood alcohol test of the plaintiff about an hour and a half after the accident and that the test was made according to the standard method used by the United States Army in making such blood tests. He stated that in his opinion, based on the results of such test, the plaintiff was not so under the influence of liquor at the time of the accident as to affect his ability to drive an automobile properly. The specific result of the test was not stated in the report of this case. Defendant objected to the admission of this testimony on the ground that it was irrelevant, immaterial, prejudicial and of no probative value.

The court of appeals held, in effect, that such testimony was neither irrelevant, immaterial nor prejudicial and said that under the circumstances the evidence was properly admitted and that its probative value was to be determined by the jury. The jury found for the plaintiff. We are of the opinion, said the court, that the verdict is authorized by the evidence. The judgment for the plaintiff was accordingly affirmed.—*Macon Busses, Inc. v. Dashiell, 35 S. E. (2d) 666 (Ga., 1945).*

Workmen's Compensation Acts: Conflict in Medical Testimony No Bar to Award for Hernia.—The claimant filed for compensation for injuries resulting in a hernia alleged to have been sustained during the course of his employment with the Bell Aircraft Corporation, and from an award in his favor the defendant corporation and its insurer appealed to the court of appeals of Georgia, division number 1.

The undisputed testimony of the claimant showed that, while pushing a rack weighing some 800 pounds, he strained himself and felt as though he had pushed something loose down in his groin. He did not associate the pain with either side but stated that he was in pain all over the lower part of his stomach. This occurrence took place on Jan. 15, 1944, and the claimant, on notifying the foreman of the circumstances, was immediately sent to Dr. Bailey, one of defendant's physicians, for first aid treatment. Dr. Bailey found that the claimant was suffering from a hernia and prescribed a suspensory for the claimant to wear. Claimant continued to work at lighter work up to March 1, 1944, but on that date he returned to his home and remained in bed most of the time for ten or eleven weeks. On April 4 claimant visited Dr. Coker, not one of defendant's physicians, and was found to be suffering from a hernia. Dr. Coker secured a truss for the claimant to wear which enabled the claimant to do some light work as a carpenter and to do a little work around his farm. He testified that his stomach and groin still pained him at that time, however. In conclusion the claimant stated that he was in need of an operation for hernia, was at the time of the hearing seeking such an operation and that he had never refused any operation nor been offered one by the defendant.

Dr. Brown, another of defendant's physicians, was the only physician who testified at the hearing, the medical evidence being substantially as follows: Dr. Bailey found a hernia on the left side as a result of his examination made on January 15, the date of the accident. Dr. Brown found no hernia to exist on the date of February 28, when he examined the claimant. He further testified, concerning his own examination, that the claimant had given a history of kidney stones on the left side at the age of 20 and also a history of having a back injury following a motorcycle accident. Dr. Coker, who examined the claimant on April 4, found an inguinal hernia on the right side. Dr. Wiseley, also one of the defendant's physicians, examined the claimant on May 8, 1944 and found nothing wrong with the claimant. Dr. Wiseley, it appeared, had examined the claimant because he wanted a medical release, but this was refused. Finally Dr. Brown testified that an examination of the claimant at the time of the hearing disclosed a right inguinal hernia. Dr. Brown was unable to answer as to why Dr. Bailey found a hernia on the date of the accident, whereas the witness was unable to find one on February 28, nor could he explain why Dr. Coker found an inguinal hernia on the right side on April 4, whereas Dr. Wiseley found nothing wrong with the claimant on May 8.

On the basis of this evidence the director found that the claimant was suffering from a hernia as a result of the accident on January 15, that said hernia occurred immediately after the accident, that said accident had not aggravated a preexisting condition that the claimant may or may not have had as a result of a motorcycle accident or kidney stone, and that the hernia existed at the time of the hearing. In making an award in favor of the claimant the director also ordered the defendant to tender adequate medical care and hospitalization for the repair of the right inguinal hernia.

The defendant's assignment of error was to the effect that there was no competent evidence to support the award, the gist of the contention being that the director at the hearing had taken into consideration the hearsay testimony of Dr. Bailey, who had not been sworn as a witness. Dr. Brown, said the court, was sworn in as a witness and was questioned at length by the director and the attorney for the claimant concerning the contents of Dr. Bailey's report and Dr. Bailey's findings. No objection was made during the entire hearing as to the admissibility of Dr. Bailey's findings. Furthermore, continued the court, even if such testimony was hearsay and was admitted with or without objection, it would not require the setting aside of the award in favor of the claimant. Without considering this testimony, concluded the court, there was evidence to support the award of the compensation commission. Accordingly the award in favor of the claimant was affirmed.—*Hartford Accident & Indemnity Co. v. Hillhouse, 35 S. E. (2d) 603 (Ga., 1945).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Jan. 12, page 109.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Various Centers, Feb. 4-6. Part III. *Various Centers,* March. Exec. Sec., Mr. E. S. Elwood, 225 S. Fifteenth St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY & SYPHILOLOGY: *Written. Group B.* April 22. *Oral. Group A and B.* June 6-8. Final date for filing application is March 1. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Philadelphia, May 9-11. Final date for filing application is March 15. San Francisco, June 27-29. Final date for filing application is April 15. Asst. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May 27. Final date for filing application is Feb. 1. Sec., Dr. P. C. Bucy, 912 S. Wood St., Chicago 12.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Jan. 18-22 and New York, April 15-19, San Francisco, June 22-25, and Chicago, Oct. 9-12. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, May 22-25. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PSYCHIATRY & NEUROLOGY: Chicago, May 24-25. Final date for filing application is February 1946. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N. W., Washington 6, D. C.

AMERICAN BOARD OF UROLOGY: *Oral.* Chicago, February 1946. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

15:305-350 (Aug.) 1945

Target Cells and Other Abnormalities of Red Cells in Presence of Normal Erythrocyte Count and Hemoglobin Content. J. M. Lubitz.—p. 305.
Cat Bite and Scratch Wounds with Consequent Pasteurella Infection of Man. G. H. Hansmann and M. Tully.—p. 312.
Studies on Etiologic Relation of Streptococci to Acute Epidemic Respiratory Infections. E. C. Rosenow.—p. 319.
*Measles Pneumonia, with Note on Giant Cells of Measles. G. Milles.—p. 334.
Laboratory Purification of Penicillin by Berger Method. G. Denton.—p. 339.
Drowning in Gasoline. S. Mead.—p. 342.
Work of Tissue Survey Committee. T. C. Moss.—p. 344.

Measles Pneumonia.—According to Milles, pneumonia is a common occurrence in measles and it often assumes such a characteristic form that it should be regarded as an integral part of the disease rather than a complication. Milles reports the histories of 2 adults who died late in the course of measles pneumonia. Results of necropsy on these 2 cases emphasize the anatomic specificity of measles pneumonia. The pulmonary lesion of measles results from extension of the lesion of the mucous membrane along the bronchial tree to the finer ramifications. The partial obstruction of the smaller passages by desquamated epithelium and mucus leads to conversion of the process from a catarrhal inflammation, characteristic of the larger air passages, to a purulent process. Extension into the peribronchiolar tissues and into the neighboring alveoli results in a bronchopneumonia, which may be disseminated and discrete or may become confluent. In either instance the process is specific if one may interpret the presence of even a rare Alagna giant cell as specific for measles. The roentgenogram of the disseminated process is not unlike that seen in miliary tuberculosis or rarely in atypical pneumonia. The Alagna giant cell with its bare agglomeration of eight or more nuclei is apparently specifically found in measles and was noted in the reported cases as late as the twenty-fourth day of the disease.

American J. Digestive Diseases, Fort Wayne, Ind.

12:*323-354* (Oct.) 1945

*Peptic Ulcer Disappearance After Feedings of Normal Human Gastric Juice. L. M. Morrison.—p. 323.
Prevention of Induced Peptic Ulcer in Dogs by Feeding Hog Stomach Preparation. L. M. Morrison.—p. 328.
Diaphragm in Abdominal Decompression. W. Cane.—p. 331.
Action of Histaminase Preparations in Heidenhain Dogs. H. H. Rostofer and M. Laskowski.—p. 337.
Lymphosarcoma of Stomach. L. Cardon and Regina S. Greenebaum.—p. 339.
Carcinoma of Esophagus. I. Kross.—p. 344.
Unusual Clinical Syndrome Following Ingestion of Fish. H. Schneck.—p. 347.

Disappearance of Peptic Ulcer After Feeding of Normal Gastric Juice.—Morrison removed gastric juice from normal subjects and fed it to patients with peptic ulcer. Normal gastric juice was obtained from 6 volunteer subjects. The juice was rendered neutral by sodium hydroxide, filtered and rendered bacteriologically sterile by 0.3 per cent tricresol as a preservative. Ten patients with uncomplicated peptic ulcer roentgenologically demonstrable as a niche, a crater or an ulcer defect, in addition to the associated x-ray findings such as spasm, increased emptying time and local pain to palpation under fluoroscopic guidance, were placed on a well balanced diet. One half ounce of normal gastric juice diluted with 2 ounces of tap water was fed to each patient every hour during waking hours. No other medication was given. Eight of the 10 patients responded in from twenty-four to forty-eight hours to the feeding of normal gastric juice by becoming free from ulcer symptoms. No ulcer recurrences have occurred in these 8 patients during a three year follow-up period. Of the 2 patients who showed no improvement, 1 had had ulcer symptoms for nineteen years and the other intermittently for twenty-five years. The author concludes that a "protective principle" is elaborated within the gastric and duodenal mucous membranes and is secreted into the gastric juice. This protective principle may be lacking or impaired in patients with peptic ulcer, but it can be fed to them, causing the ulcers and symptoms to disappear.

American Journal of Hygiene, Baltimore

42:107-224 (Sept.) 1945

Additional Wild Caught Anopheles Punctimacula D. and K. Infected with Malaria Plasmodia in Colombia, South America. C. B. Huffaker, H. Soto and H. Rey.—p. 107.
Virulence of IG Strain of Plasmodium Relictum for Duck. F. Wolfson.—p. 111.
Mouse Adapted Lansing Strain of Poliomyelitis Virus: IV. Neutralizing Antibodies in Serum of Healthy Children. T. B. Turner, L. E. Young and Elizabeth S. Maxwell.—p. 119.
Studies on *Schistosome Dermatitis: IX. Life Cycles of* Three Dermatitis Producing Schistosomes from Birds and Discussion of Subfamily Bilharziellinae (Trematoda: Schistosomatidae). D. B. McMullen and P. C. Beaver.—p. 128.
Effect of Preservation by Freezing on Virulence of Plasmodium for Ducks. F. Wolfson.—p. 155.
Complement Fixation in Malaria and Syphilis. Frances Babin and Anna D. Dulaney.—p. 167.
Terminal Hypoglycemia in Ducks with Malaria. H. N. Marvin and *R. H. Rigdon.*—p. *174.*
Outbreak of Diphtheria in Baltimore in *1944.* C. H. Eller and M. Frobisher Jr.—p. 179.
Plasmodium Lophurae Infection of Chick Embryo. R. H. Rigdon.—p. *189.*
Studies on *Tsutsugamushi* Disease (Scrub Typhus, Mite Borne Typhus) in New Guinea and Adjacent Islands: Tsutsugamushi Disease with High Endemicity on Small South Sea Island. C. B. Philip and G. M. *Kohls.*—*p. 195.*
*Effect of Fatigue, Chilling and Mechanical Trauma on Resistance to Experimental Poliomyelitis. S. O. Levinson, A. Milzer and P. Lewin.—*p. 204.*
*Epidemiology of Acute Respiratory Infections Conditioned by Sulfonamides: VI. Epidemicity of Subclinical Pneumococcal Infections. M. Siegel and Helen V. Karr.—p. 214.

Effect of Fatigue, Chilling and Trauma on Resistance to Poliomyelitis.—Levinson and his associates found that monkeys subjected to exhausting exercise or to chilling during the incubation period of experimental poliomyelitis developed a higher incidence and more severe paralysis than controls. Monkeys subjected to trauma of one or more limbs during the incubation period of experimental poliomyelitis showed no correlation with the location of the paralysis, and the severity and extent of paralysis did not differ from the controls. The incidence and severity of paralysis was significantly greater in monkeys inoculated with the virus during the summer months.

Influence of Sulfonamides on Epidemicity of Subclinical Pneumococcic Infections.—Siegel and Karr studied over a period of eighteen months the nasopharyngeal pneumococcic flora of 60 normal children, of whom half were treated with sulfadiazine for fifteen consecutive weeks and half were untreated. Fluctuations in the frequency of different predominant pneumococcus types were observed which were unaccompanied by recognizable symptoms and resembled a succession of subclinical epidemics affecting from 53 to 97 per cent of the persons exposed. Chemotherapy modified the normal frequency trend of susceptible strains and initiated generalized carrier epidemics of resistant strains. Therapy affected the prevailing ratio of drug susceptible pneumococci to drug resistant strains, which eventually readjusted itself after treatment. The authors conclude that the epidemicity of nasopharyngeal pneumococcic infections is inherent in strains of different degrees of virulence and can be profoundly altered by selective chemotherapy.

American Journal of Ophthalmology, Cincinnati

28:1073-*1192* (Oct.) *1945*

Acquired Blepharoptosis (Symptomatic Ptosis). E. B. Spaeth.—p. 1073.
Ophthalmology in Paris During War. *P. Prelat.—p. 1088.*
Traumatic Ocular Injuries in Soldiers: Preliminary Study. B. Rones and Helenor Campbell Wilder.—p. *1112.*
Changes at Macula Due to Solar Radiation. C. McCulloch.—p. 1115.
Causes of Failure in Treatment of Squint. F. D. Costenbader.—p. 1123.

American Review of Soviet Medicine, New York

3:5-96 (Oct.) 1945

Anaerobic Infection of Brain. N. I. Grashchenkov.—p. 5.
Role of Vitamins in Pathogenesis and Treatment of Skin Diseases. L. N. Mashkilleison, E. B. Benyamovich, E. D. Krichevskaya and L. V. Shatamova.—p. 19.
Observations on Pathogenesis of Hypertension. N. N. Gorev and A. I. Smirnova-Zamkova.—p. 28.
Cyclodiathermy in Secondary Glaucoma. M. I. Auerbach.—p. 35.
Permeability of Hematoencephalic Barrier in Massive Arsenotherapy. E. I. Krichevskaya and D. I. Lass.—p. 38.
*Immunization of Diphtheria Carriers. M. Roshkovskaya and G. Shumakova.—p. 41.
Agonal States and Clinical Death: Problems in Revival of Organisms. V. A. Negovski.—p. 45.

Immunization of Diphtheria Carriers.—Roshkovskaya and Shumakova studied the problem of immunization of carriers in a large group of school children who were exposed to 15 cases of diphtheria. Immunization and bacteriologic studies were preceded by Schick tests. The follow-up lasted six months. The Schick test was positive in 143 of 495 children examined. In the course of six months the positive Schick reactors were examined three times. The first examination was carried out prior to immunization, the second examination one month and the third examination four months after the last vaccination. The proportion of positive cultures remained almost unchanged four months after immunization (23.2 per cent versus 24.7 per cent) but the carrying of virulent bacilli greatly changed. Thus, in the examination prior to immunization 16.3 per cent of the total cultures were of the virulent type in these carriers. One month after immunization there were 4.5 per cent and after four months only 2.8 per cent of the total number of cases. Avirulent bacilli increased correspondingly from 8.4 per cent (first examination) to 20.4 per cent (third examination). Whether the virulent bacilli are transformed into avirulent ones or whether reinfection with avirulent forms occurs remains a question. A comparison was made of diphtheria carriers in Schick positive and Schick negative children. Of the 143 children with positive Schick reactions 25.2 per cent, and of 352 Schick negative children 12.8 per cent were carriers of virulent bacilli. The greatest incidence of virulent carriers was found in children with a 1 plus Schick reaction; none were found in highly susceptible (Schick 3 plus) children.

Annals of Internal Medicine, Lancaster, Pa.

23:491-710 (Oct.) 1945

*Treatment of Subacute Bacterial Endocarditis with Penicillin: Report of Cases Treated Without Anticoagulant Agents. J. R. Goerner, A. J. Geiger and F. G. Blake.—p. 491.
Endemic (Murine) Typhus Fever: Clinical Observations of 180 Cases. B. M. Stuart and R. L. Pullen.—p. 520.
*Use of Thiouracil in Treatment of Patients with Hyperthyroidism. J. L. Gabrilove, M. J. Kert and L. J. Soffer.—p. 537.
*Werner's Syndrome (Progeria of Adult) and Rothmund's Syndrome: Two Types of Closely Related Heredofamilial Atrophic Dermatoses with Juvenile Cataracts and Endocrine Features; Critical Study with 5 New Cases. S. J. Thannhauser.—p. 559.
Absorption and Excretion of Iron. A. G. Little Jr. and E. G. Wakefield.—p. 627.
Ventricular Tachycardia: Report of 10 Cases, 8 of Which Were Treated with Quinidine, with Recovery in 7. S. L. Zimmerman.—p. 634.

Endocarditis Treated with Penicillin.—In 1942 Goerner and his associates employed small doses of penicillin in the treatment of 4 patients with subacute bacterial endocarditis. All of the 4 patients so treated died from six weeks to twelve months later. In 1944 the authors used larger doses. The plan was to give each patient about 240,000 units of penicillin daily for three to four weeks. A larger dose or longer course might be indicated by unusually high resistance of the infecting organism to penicillin in vitro, unsatisfactory serum penicillin levels or unfavorable clinical course. Each patient received 5,000,000 or more units of penicillin. Of 12 patients so treated 11 are alive and well, and in several instances more than a year has elapsed since termination of therapy. Heparin proved unnecessary, nor did its use alter the outcome of the single unsuccessful case. Of the three parenteral routes of administration—continuous intravenous infusion, continuous intramuscular infusion and intermittent intramuscular injections at two hour intervals—the first was the most satisfactory. The authors conclude that penicillin alone is an effective therapeutic agent in subacute bacterial endocarditis when the infecting organism is inhibitable by penicillin and the conduct of treatment is carefully determined in each individual case.

Thiouracil in Hyperthyroidism.—Gabrilove and his associates employed thiouracil in the treatment of 51 patients with hyperthyroidism and of 3 patients with nontoxic goiter. Thirty-three of these patients have been treated successfully with thiouracil for varying periods of time, the longest period of continuous therapy being ten months. Four of these patients had recurrent hyperthyroidism, the remainder having diffuse hyperplasia or toxic nodular goiter. Three patients with hyperthyroidism were successfully prepared for operation with thiouracil. Four patients with hyperthyroidism failed to respond satisfactorily to thiouracil. These patients were subsequently prepared with iodine and successfully operated on. In 11 instances thiouracil therapy was discontinued because of severe toxic reactions. Toxic reactions encountered were conjunctivitis 5 cases, edema 1 case, drug fever 4 cases, leukopenia 1 case and agranulocytosis 6 cases. Toxic reaction in some form was encountered in nearly one third of the patients. One patient with agranulocytosis died. The authors feel that because of the frequency and severity of toxic reaction, thiouracil should be used under the following circumstances: in the preparation of iodine-fast patients for operation, in older persons with hyperthyroidism who are poor operative risks, and in patients with recurrent hyperthyroidism who have been operated on twice or more.

Werner's Syndrome and Rothmund's Syndrome.—Thannhauser designates Werner's syndrome and Rothmund's syndrome as heredofamilial disorders. Many cases are reported in the literature under the misleading designation "scleroderma and cataracts." The skin changes in Werner's syndrome are not those of true scleroderma. Because of its recessive heredofamilial occurrence it is suggested that the skin changes, as the other symptoms of Werner's syndrome, are the result of a defective germ plasm not manifesting itself until the second and third decades of life. The designation of the disorder as "progeria of the adult" is suggested, since all symptoms of Werner's syndrome result in presenility. The designation of the skin changes as "heredofamilial atrophic dermatosis with skin ulcers" seems more appropriate. The skin ulcers in Werner's syndrome are not entirely trophic in origin since they appear only on exposed parts and are probably the result of pressure on the thin, atrophic and stretched skin. The success of grafting supports this opinion. The skin changes of Rothmund's syndrome are classified in the literature as poikiloderma or scleropoikiloderma. Such a classification does not accord with the heredofamilial occurrence or with the microscopic aspects. The author suggests for the skin changes in Rothmund's syndrome the term "heredofamilial atrophic dermatosis with telangiectases." Both syndromes may occur in incomplete forms. The heredity in both is recessive. The occurrence in brothers and sisters of one generation is often observed. Rothmund's syndrome starts usually in childhood, Werner's syndrome in the second and third decades. The author rejects the suggestion that Werner's and Rothmund's syndromes represent a purely ectodermal dysplasia or a primary endocrine functional disturbance. The recessive heredity of both syndromes suggests the existence of multiple germ plasm defects manifesting themselves in abiotrophic features of various organs at different periods of life.

California and Western Medicine, San Francisco

63:155-204 (Oct.) 1945

Psychogenic Factors in Obstetrics and Gynecology. R. E. Fallas.—p. 161.
Psychogenic Factors in Obstetrics. Frances Holmes.—p. 161.
Psychogenic Factors in Gynecology. G. E. Judd.—p. 164.
Neuroses of War Wives. W. B. Thompson.—p. 167.
Significance of Psychoanalysis for Gynecology. E. Simmel.—p. 169.

Canadian Journal of Public Health, Toronto

36:385-412 (Oct.) 1945

Full Time Health Service in Nova Scotia. P. S. Campbell.—p. 385.
Findings on Re-Schick Testing of Air Force Personnel. A. H. Sellers, J. H. Baillie, J. M. Cruikshank and J. C. McKibbon.—p. 390.
Salmonellosis—A Public Health Problem. J. S. Kitching.—p. 396.
Food Poisoning Due to Salmonella Newport. W. B. McClure and V. Crossley.—p. 401.

Canadian Medical Association Journal, Montreal

53:309-420 (Oct.) 1945

*Ulcer Problem: I. Etiology, with Special Reference to Interrelationship Between Vascular and Acid-Peptic Digestive Factors; II. Characterization of Satisfactory Operation Which Will Protect Against Recurrent Ulcer. O. H. Wangensteen.—p. 309.
Review of Fractures and Dislocations of Carpus. H. I. J. Kellam and P. F. McGoey.—p. 332.
Subacute Neutropenia Treated by Splenectomy. C. Auger, J. B. Jobin and L. N. Larochelle.—p. 335.
Study of Ascorbic Acid Nutrition. H. J. Leeson, Jean F. Webb, Helen P. Ferguson and Evelyn M. Semmons.—p. 341.
Tuberculosis Prevention. D. M. Gibson.—p. 349.
Disuse Atrophy of Skeletal Muscle. W. B. Ayre.—p. 353.
Observations on Certain Diseases of Tropics. J. K. McCorkle.—p. 355.
Present Status of Standardization of Digitalis and Strophanthus Products in Canada M. G. Allmark and W. M. Bachinski.—p. 361.
Treatment of Myomas in Pregnancy Which Are Undergoing Degeneration. H. W. Johnston.—p. 367.
Medical Education for 1980. W. C. Gibson.—p. 367.

Ulcer Problem.—The ease of production of perforating gastric and/or duodenal ulcer in animals by the implantation of histamine in beeswax emphasizes the importance of the acid-peptic digestive activity of the gastric juice in ulcer genesis. Fat embolism may occur following fracture of long bones and plug the end vessels of the gastric mucosa and produce erosions and/or ulcer, which in turn in the presence of active gastric secretion may result in bleeding, hematemesis and/or melena. This has been observed clinically and has been produced experimentally. The production of severe bleeding from erosions and/or ulcer attending the administration of vasospastic agents such as epinephrine or pitressin accompanied by histamine in beeswax definitely suggests the important role of the ischemia resulting from an overactive vasomotor influence in ulcer genesis when attended by active gastric secretion. Partial obstruction to the venous outflow from the stomach increases the weight of the stomach as a result of the ensuing edema of the gastric wall, especially of the submucosa. Such venous obstruction abets the ulcer diathesis. Bleeding gastric and/or duodenal erosions and/or ulcers, as well as erosions of the lower end of the esophagus, may be produced by such obstructions. The threatening bleeding of portal vein obstruction may be corrected by an operation (90 per cent resection) which reduces the capacity of the stomach to secrete. Wangensteen carried out this operation on 4 patients. Occult hemorrhage from the alimentary canal frequently has its origin in the stomach, and gastric resection is indicated in many such instances. This procedure was carried out successfully in 4 cases of profound occult anemia. The histamine in beeswax technic has proved a useful instrument in appraising the characterization of a satisfactory operation for ulcer. A three-fourths resection carried out on the Billroth II plan of operation, employing a short afferent duodenal loop in which the antral mucosa and the lesser curvature of the stomach are excised, meets the requirements of a satisfactory operation for ulcer.

Endocrinology, Springfield, Ill.

37:223-300 (Oct.) 1945

Effects of Para-Aminobenzoic Acid and Thiouracil on Thyroid Function and Resistance to Low Pressures. A. S. Gordon, E. D. Goldsmith and H. A. Charipper.—p. 223.
Effects of Thyrotropin on Metabolism of Thiouracil Treated Rats. S. B. Barker.—p. 230.
Hormonal Induction of Mating Responses in Spayed Adrenalectomized Female Rat. J. R. Ring.—p. 237.
Alterations in Autarceologic Susceptibility of Mouse to Experimental Poliomyelitis by Estrogenic Substances. G. E. Foley and W. L. Aycock.—p. 245.
Effects of Synthetic and Natural Hormone of Adrenal Cortex on Melanin Deposition in Adrenalectomized Black Rats Fed Diets Adequate and Deficient in Filtrate Factors of Vitamin B. Elaine P. Ralli and I. Graef.—p. 252
Metabolism of Steroid Hormones: Isolation of Androstenol-3(a)-17-One, Androgen, from Urine of Girl Suffering from Virilism. R. I. Dorfman and Sara Schiller.—p. 262.
Effect of Testosterone Propionate on Seminal Vesicles of Juvenile and Castrate Male Rats. H. W. Hays and D. R. Mathieson.—p. 266.
Use of Castrate Male Rats for Assay of Testosterone Propionate. D. R. Mathieson and H. W. Hays.—p. 275.
Duration of Action of Single Doses of Thyroid Hormone. A. M. Hughes.—p. 280.
Quantitative Studies on Response of Sex Characters of Differentiated Rana Clamitans Larvae to Injected Androgens and Estrogens. Beatrice Mintz, C. L. Foote and E. Witschi.—p. 286.

Epidemiol. Inform. Bull., Washington, D. C.

1:718-758 (Oct. 15) 1945

Epidemic Situation in Europe. K. Stowman.—p. 719.
Current Reports on Prevalence of Certain Diseases.—p. 733.
Infant Mortality Rates in Large Towns, 1937-1945.—p. 753.

Indiana State Medical Assn. Journal, Indianapolis

38:373-438 (Oct.) 1945

Industrial Health Activities of Government. I. G. Townsend.—p. 373.
War's Impact and Influence on Industrial Medicine. C. D. Selby and E. F. Lutz.—p. 378.
Industrial Dentistry. L. D. Heacock.—p. 381.
Progress in Industrial Dermatology. S. M. Peck.—p. 383.
Evansville Industrial X-Ray Survey. P. D. Crimm.—p. 385.
Negative Chest Findings in Mineral Wool Industry. J. L. Carpenter and L. W. Spolyar.—p. 389.
Estimation of Disability in Silicosis. I. W. G. Hannon.—p. 391.

Journal of Clinical Endocrinology, Springfield, Ill.

5:327-362 (Oct.) 1945

Effect of Testosterone Propionate on Losses Incident to Inadequate Dietary Intake. A. M. Butler, N. B. Talbot, E. A. MacLachlan and M. A. Linton.—p. 327.
Enhancement of Tuberculous Infection in Guinea Pig by Steroid Hormones. W L. Aycock and G. E. Foley.—p. 337.
*Observations on Use of Thiobarbital as Antithyroid Agent in Treatment of Graves' Disease. E. B. Astwood.—p. 345.

Thiobarbital as Antithyroid Agent.—Astwood states that 1 of each hundred patients treated with thiouracil has developed agranulocytosis and as a consequence 1 in a thousand has died. The more common reaction from thiouracil, drug fever, while not a serious complication, usually requires that the drug be discontinued and the disease must be treated in some other way. Thiobarbital (5,5-diethyl-2-thiobarbituric acid) has been used in man. The author treated 30 patients with hyperthyroidism with thiobarbital. Total daily doses of from 0.1 to 0.4 Gm. were given. All of the manifestations of hyperthyroidism were satisfactorily controlled, but in the dosage used there was a high incidence of complications. Two deaths occurred, one from agranulocytosis and one from an acute liver disorder; 6 patients experienced a febrile reaction during the second week of treatment. It is estimated that thiobarbital is more than twice as active as thiouracil in inhibiting the function of the thyroid but that it is more toxic than thiouracil when the minimal effective dose is exceeded.

Journal of Lab. and Clinical Medicine, St. Louis

30:809-898 (Oct.) 1945

*Penicillin Levels in Serum and in Some Body Fluids During Systemic and Local Therapy. E. M. Ory, M. Meads, B. Brown, Clare Wilcox and M. Finland.—p. 809.
Rh Agglutination in Various Media, with Particular Reference to Value of Albumin. L. K. Diamond and R. L. Denton.—p. 821.
Clinical Evaluation of Copper Sulfate Method for Measuring Specific Gravities of Whole Blood and Plasma. J. Atchley, R. Bacon, G. Curran and K. David.—p. 830.
Thiamine Requirement in Alloxan Diabetes. P. T. Lowry and D. M. Hegsted.—p. 839.
Bacteriostatic Properties of Sulfanilamide and Some of Its Derivatives: III. Carboxysulfathiazoles as Chemotherapeutic Agents Active in Gastrointestinal Tract. E. J. Poth and C. A. Ross.—p. 843.
Measurement of Pulmonary Arterial Pressure in Dogs. E. W. Czebrinski, J. R. Smith, S. S. Nemec and J. A. Robb.—p. 849.
Liver Function Studies on Soldiers Under Prolonged Atabrine Administration. S. P. Gottfried and A. C. Levine.—p. 853.
Serum Proteins in Portal Cirrhosis. R. S. Stacey.—p. 855.
Anoxia in Malaria: Experimental Study on Ducks. H. H. Rostorfer and R. H. Rigdon.—p. 860.
Attempted Transmission of Human Leukemia in Man. J. B. Thiersch.—p. 866.
Hematologic Values of American Soldiers Stationed in Tropics. E. Denhoff.—p. 874.

Penicillin Levels During Systemic and Local Therapy.—Ory and his associates determined concentrations of penicillin in serum and certain body fluids of adult medical patients after administration of various doses of commercial penicillin given by different routes. The data were obtained almost entirely on patients while they were under treatment. When compared with the results of tests for sensitivity of the offending organism, such information helps to indicate the results to be expected from therapy in various types of cases. During continuous intravenous or intramuscular administration fairly constant levels are maintained in the serum of any given patient, but the levels may vary in different patients on the same dose. During intermittent intramuscular injections a range of serum levels but not exact values can be predicted for the interval between doses on any given dosage schedule. Larger doses result in serum levels which are sustained longer and at higher values than smaller ones. During intramuscular penicillin therapy it was not possible to detect penicillin in the cerebrospinal fluid, and the levels in pleural, peritoneal and synovial fluids were erratic and usually lower than the serum levels. Diffusion from local injections of penicillin into body cavities or into the serum is quite erratic, but adequate concentrations usually remain in cerebrospinal, pleural and pericardial fluids for twenty-four hours and sometimes for forty-eight hours or longer after local injections of large amounts. After inhalation of penicillin from nebulized solutions, small amounts may be detected in the serum for short periods but rarely for as long as two hours.

Journal of Nat. Cancer Inst., Washington, D. C.

6:89-146 (Oct.) 1945

Colchicine in Experimental Chemotherapy of Cancer. R. D. Ludford. —p. 89.
Cancer Mortality and Marital Status: Analysis of Deaths Attributed to Cancer Among White Population of New York City During 1939-1941. T. J. Duffield and P. H. Jacobson.—p. 103.
Paneth Cells in Carcinomas of Small Intestine in Mouse and in Rat. Thelma B. Dunn and A. M. Kessel.—p. 113.
Effect of Nucleates on Dehydrogenase Systems. H. W. Chalkley and J. P. Greenstein.—p. 119.
Effect of Sodium Bicarbonate, Pyruvate and Diphosphopyridine Nucleotide on Dehydrogenase Activity. J. P. Greenstein and H. W. Chalkley. —p. 143.

Laryngoscope, St. Louis

55:465-526 (Sept.) 1945

Review of Available Literature on Pharynx and Pharyngeal Surgery for 1944. F. E. LeJeune.—p. 465.
M. Pterygopharyngeus and Its Relation to M. Palatopharyngeus. R. Harrington.—p. 499.
Myringitis Granulosa. J. J. Hochfilzer.—p. 509.
Thrombophlebitis of Lateral Sinus, Complicated by Pregnancy, with Complete Recovery. W. E. Sauer and Doris S. Woolsey.—p. 519.

Military Surgeon, Washington, D. C.

97:265-354 (Oct.) 1945. **Partial Index**

Clinical Conception of Blood Pressure. J. S. Sweeney.—p. 265.
*Results of Electric Shock Therapy in First 150 Cases at Veterans' Facility, Northport, N. Y. L. Lowinger and J. H. Huddleson.—p. 271.
Dairy Products in Army Ration. R. A. Isker.—p. 277.
Recurrent Nightmares: Simple Procedure for Psychotherapy. M. Moore. —p. 282.
Observations in Frontal Area Surgery. H. A. Barnes.—p. 285.
Treatment of Battle Casualties in Initial Phases of Operations at Iwo Jima Island. M. Baldwin and C. W. Reynolds.—p. 288.
Universal O vs. Typed Blood: Comparative Evaluation. J. C. Norris and J. C. Schwarting.—p. 297.
Method of Psychologic Screening of Naval Offenders. W. C. B. Johnston, H. R. Otness and G. A. W. Stouffer Jr.—p. 300.
Survey of Foot Complaints on Road Marches. B. T. Daniels and C. H. Wilson.—p. 306.
Disciplinary Problems in Military Neuropsychiatric Hospital. J. F. Casey.—p. 312.
Hypertensive Preoperative Shock Treatment in War Wounds: Preliminary Report Written in Field. W. A. Barrett.—p. 317.
Haiti Makes All Out Effort Against Yaws. M. Royere.—p. 321.
Aims of Amputation. H. H. Kessler.—p. 322.

Electric Shock Therapy.—Lowinger and Huddleson treated 150 cases at the Veterans' Facility of Northport, N. Y., utilizing Kalinowsky's technic of electric shock therapy. Kalinowsky's plan of giving an immediate second shock, if grand mal failed to appear within a few seconds, was followed during the first thirteen and a half months. Doubling of shock was then discontinued as possibly contributory to accidents. Kalinowsky stressed the adequacy of treatment for dementia precox and favored a minimum course of twenty attacks of grand mal. The fracture prophylaxis employed by the authors has been limited to sandbags in graduated sizes. Active tuberculosis, cardiac or nephritic disease, thrombophlebitis, arteriosclerosis, osteoarthritis or bone atrophies, malignant disease, organic brain disorder and epileptic predisposition were accepted as contraindications to shock therapy. An average of seventeen attacks of grand mal was induced in 150 patients, 125 of whom had dementia precox. Of these 125 patients 21 were quiescent or much improved, 19 were improved and 85 were unimproved. The percentage of improvement was largest in cases of less than six months' duration. Of those cases which had lasted more than two years, none achieved a remission or were improved. Of 4 patients with miscellaneous psychoses, 3 were quiescent or much improved and 1 was unimproved.

New York State Journal of Medicine, New York

45:2031-2126 (Oct. 1) 1945

*Orthostatic (Lordotic) Albuminuria: Including Studies on Patients in Hyperextension Body Casts. A. I. Friedman and H. S. Read. —p. 2075.
Preliminary Report of Combined Effects of Vitamin B Complex with Amino Acids. M. Jacobson.—p. 2079.
Dermatophytosis of Feet (Athlete's Foot): Its Successful Treatment with Sodium Perborate (50 per Cent) in Cold Cream or Lanolin. B. M. Becker.—p. 2081.
*Pylephlebitis Under Penicillin and Sulfadiazine Therapy. A. O. Wilensky.—p. 2082.

Orthostatic Albuminuria.—Friedman and Read report a case of the lordotic type of orthostatic albuminuria. In 5 patients with orthopedic disorders wearing hyperextension body casts, repeated urine studies were negative for albumin, and renal function remained unimpaired. Six patients with unrelated medical and surgical conditions were placed in exaggerated lordosis for periods of one to two hours. All of these patients had negative urine studies, and the appearance of albumin could not be induced. The authors conclude that although lordosis plays a role in the pathogenesis of orthostatic albuminuria in susceptible individuals it is of no influence in producing albuminuria in normal, nonsusceptible individuals.

Penicillin and Sulfadiazine in Pylephlebitis.—A middle aged man who was operated on for acute suppurative appendicitis continued to have hyperpyrexia for four weeks, which suggested a subphrenic abscess, but an exploratory aspiration of the subphrenic space was negative. At the end of six weeks the patient presented fever and chills, enlargement of the liver with jaundice and slight functional disability, enlargement of the spleen, absence of ascites, and bacteriuria. He was given large doses of penicillin and sulfadiazine and recovered. Wilensky states that the history, postoperative course and the physical and laboratory findings were characteristic of a phlebitis of the portal vein complicating suppurative appendicitis. Enlargement of the spleen and an observed episode of pain in the splenic area with renewed enlargement of the spleen and the accompanying elevation of temperature indicated that the phlebitis spread into the splenic vein and caused infarction of that organ.

Oklahoma State Medical Assn. Jour., Oklahoma City

38:361-414 (Sept.) 1945

Visual Discomfort in Eye Workers Due to Glasses: Some Causes and Cures. G. L. Berry.—p. 361.
Actinomycosis. A. D. Auspaugh.—p. 368.
Modern Medicine in Modern China: A Challenge. L. J. Moorman. —p. 371.

38:415-468 (Oct.) 1945

*Familial Aspects of Gout, Diabetes Mellitus and Obesity. W. K. Ishmael.—p. 415.
Fluorescent Lighting and Its Effect on Visual Function. J. P. Luton. —p. 418.
War Psychology and Postwar Perspective. L. J. Moorman.—p. 427.

Familial Aspects of Gout, Diabetes Mellitus and Obesity.—Ishmael investigated family histories of 50 patients with gouty arthritis who were seen at the McBride Clinic and the Oklahoma State University Hospital. He also investigated 50 patients with diabetes mellitus and 50 patients with various types of arthritis other than gout. Fifty consecutive patients with fractures served as controls. The results indicate that patients with gout, as well as those with diabetes mellitus, have a familial background of diabetes with relatively the same incidence. Of 7,768 patients admitted to an army air force station hospital 6 had gouty arthritis, and 5 of these had diabetes mellitus in the immediate family. All listed obesity as a familial characteristic. There exists a faulty metabolism of fats in both diseases. Ketosis is capable of precipitating complications in either disease. Factors likely to produce exacerbations are infections, surgical procedures, exhaustion, ketosis, emotional upsets and exposure. Arteriosclerosis results with high frequency. The younger the patient at the onset of either disease, the more severe is the course apt to be. Nephritis is a likely final complication in both diseases. The patients themselves are apt to be of more than average weight at the onset. Furunculosis appears frequently as a complication and occasionally leads to the diagnosis of diabetes mellitus or gout.

Public Health Reports, Washington, D. C.

60:1265-1294 (Oct. 26) 1945

Long Range Dispersal of Anopheles Quadrimaculatus. D. E. Eyles, C. W. Sabrosky and J. C. Russell.—p. 1265.

DDT Residual House Spray: Method of Malaria Control in Rural Areas. F. L. Knowles and C. S. Smith.—p. 1274.

60:1295-1322 (Nov. 2) 1945

Increase of Rat Infestation on Vessels Coming to New York. R. Olesen.—p. 1295.

Increase of Rat Infestation on Oil Tankers. R. Olesen and J. L. Stone.—p. 1296.

Modified Rabbit Box Trap for Use in Catching Live Wild Rats for Laboratory and Field Studies. C. P. Richter and J. T. Emlen Jr.—p. 1303.

Damage to Fabric by Liquid Hydrocyanic Acid Gas in Fumigation. G. C. Sherrard.—p. 1308.

Surgery, St. Louis

18:1-528 (Oct.) 1945

Review of Patients with Intrathoracic Disease and Injury Treated on Surgical Service of United States Army General Hospital in North Africa. J. R. Paine and A. G. Plankers.—p. 401.

*Putrid Empyema Without Foul Sputum: "Surprise" Putrid Empyema. H. Neuhof and D. Stats.—p. 411.

*Pulmonary Embolism in Fractures of Hip. H. Golodner, L. J. Morse and A. Angrist.—p. 418.

*Treatment of Progressive Bacterial Synergistic Gangrene with Penicillin. F. L. Meleney, S. T. Friedman and H. D. Harvey.—p. 423.

Ileostomy and Colectomy in Chronic Ulcerative Colitis. C. Dennis.—p. 435.

Extrusion of Gastric Mucosa Through Pylorus: Report on 2 Patients Treated by Partial Gastrectomy. M. Norgore and I. J. D. Shuler.—p. 452.

Intussusception in Adults. A. H. Iason.—p. 457.

Improved Method for Extraperitoneal Closure of Colostomy. T. A. Shallow, S. A. Eger and W. J. Tourish.—p. 466.

Dynamics of Biliary Drainage: Its Relation to Cholangitis and Pancreatitis from Stricture of Ampulla of Vater. J. M. McGowan.—p. 470.

Spontaneous Rupture of Lower Colon with Evisceration of Small Intestine Through Anal Orifice: Complication of Advanced Rectal Prolapse. S. McLanahan and M. L. Johnson.—p. 478.

Three Hundred and Fifty-Two Cases of Tetanus. R. T. Vinnard.—p. 482.

Gunshot Fractures of Shaft of Humerus. W. T. Fitts Jr., C. K. Kirby and E. A. Brav.—p. 493.

Radiographic Diagnosis of Hernia into Lesser Peritoneal Sac Through Foramen of Winslow: Report of Case. M. S. Hollenberg.—p. 498.

Extradural Anesthesia. H. Rego Lins.—p. 502.

Semielastic Cotton Gauze Bandage Fabric. C. F. Goldthwait, J. H. Kettering and M. Moore Jr.—p. 507.

Cod Liver Oil Ointment in Surgery: Topical Application. D. C. Daughtry.—p. 510.

Care of Injured External Ear. G. V. Webster.—p. 515.

Hyperthyroidism With Progressive Exophthalmos and Without Tachycardia: Report of Case. G. O. Chapman and M. Rognoni.—p. 522.

Loss of Scrotal Integument: Simple Method of Repair. F. S. Wetherell.—p. 525.

Putrid Empyema Without Foul Sputum.—Putrid empyema without a foul sputum is not rare. Neuhof and Stats encountered a considerable number of such cases. Diagnosis of putrid empyema in the absence of foul sputum or other evidence of a pulmonary abscess is difficult. The lesion should be suspected and efforts at diagnosis persisted in when certain clinical manifestations are present. Prolonged delay in diagnosis may be fatal. The variable clinical manifestations consist primarily of persistent chest pain, slight cough and expectoration, and an illness which is severe at least in the initial stage. Cough may be absent and the course chronic. Discovery of foul pus by aspiration of the pleura is the sole method of establishing the diagnosis. This disclosure will often be a surprise. Wide drainage of the main lesion and its ramifications will effect a cure unless the diagnosis has been delayed too long. A putrid pulmonary abscess is the precursor of "a surprise" putrid empyema.

Pulmonary Embolism in Fractures of Hip.—Golodner and his associates report 86 fatalities among 304 patients with fracture of the hip. Necropsies on 25 revealed that 9 cases were due to pulmonary embolism, 8 to bronchopneumonia, 3 to arteriosclerotic heart disease, 1 to a hemorrhage from a duodenal ulcer, 1 to sepsis from a wound infection, 1 to sepsis from a severe purulent prostatitis, 1 to pyelonephritis and 1 to voluntary starvation in a demented woman. Pulmonary complications were detected in more than two thirds of the necropsies, and over half of these were pulmonary emboli. Fatal pulmonary embolism from venous thrombosis in the veins of the lower extremities is the most frequent cause of death in cases of fracture of the hip. Venous thrombosis and embolism are less frequent in patients who are made ambulant early. Prophylactic bilateral superficial femoral vein ligation combined with lumbar sympathetic block is suggested as ideal for the prevention of pulmonary embolism in fractures of the hip, especially for patients who cannot be made ambulant early.

Penicillin in Progressive Bacterial Synergistic Gangrene.—According to Meleney and his co-workers, progressive bacterial synergistic gangrene is now accepted as a clinical entity. Meleney in 1926 found that the essential bacterial agent was a microaerophilic nonhemolytic streptococcus which was present in pure culture in the advancing periphery of the lesion in 1 of the cases which Brewer and he reported. This organism was associated with a hemolytic Staphylococcus aureus in the gangrenous margin. The combination of the streptococcus and the staphylococcus was shown to produce in animals a gangrenous lesion simulating the process in human beings. This lesion could be obtained only when the organisms were combined, thus demonstrating their synergistic action. The lesion usually begins around tension sutures placed in a wound of the abdominal wall or chest which has been made for the purpose of draining either an intraperitoneal or an intrapleural abscess. The skin around the tension suture becomes red, swollen and tender and takes on a dusky appearance resembling a carbuncle with a slowly developing necrosis of the skin. This occurs from ten to twenty days after the wound has been made. Removal of the tension sutures at that time does not control the infection, which spreads and gradually produces an ulcer. Surgeons have attempted to trim away the dead tissue but, without a radical removal well beyond the zone of erythema, recurrence follows. The sulfonamides have not been effective in controlling this condition, but penicillin not only prevents a recurrence after the excision but may obviate the necessity for excision by halting the progress of the lesion and permitting a spontaneous separation of the slough. This has been demonstrated in 2 patients. In a third patient with multiple lesions, penicillin cut down the exudate and probably had some antibacterial action on certain of the bacterial species, but the presence of gram negative rods prevented its control of the infection. Surgical removal of a great part of the diseased tissue was tolerated and the postoperative course was satisfactory up to the time of the pulmonary embolus. The authors do not feel that failure in this case detracts from the value of penicillin in this disease but emphasizes the necessity of a complete bacteriologic analysis.

West Virginia Medical Journal, Charleston

41:249-272 (Oct.) 1945

Noncombat Head Injuries at an Advanced Base. E. L. Gage and H. B. Gotten.—p. 249.

Gallbladder Surgery (A Six Year Review). R. J. Wilkinson and F. C. Tung.—p. 257.

Urinary Suppression Due to Sulfathiazole. W. M. Warman.—p. 261.

41:273-300 (Nov.) 1945

Some Practical Concepts of Poliomyelitis. T. G. Folsom.—p. 273.

Orthopedic Management of Poliomyelitis. J. L. Hutchison.—p. 277.

*Intrapapillary Renal Calculi. R. U. Whipple.—p. 283.

Our Wartime Children. J. I. Klein.—p. 286.

Intrapapillary Renal Calculi.—Whipple removed calculi from the lower right ureter of a woman aged 21. The postoperative course was uneventful. On retrograde study a large (1.5 cm.) calculus was seen in the pelvis and numerous small calculi in the region of the lower major calix. A retrograde aerogram visualized the large pelvic calculus clearly. Nephrectomy was carried out. The lesion was identified as acute pyelonephritis and chronic papillary fibrosis with retention calculi. Bisection of the organ revealed that the lower major calix contained a papilla studded with many small calculi. As the gross contour of the papilla was well preserved, the specimen suggested the possibility of intratubular or intertubular calculus formation in contradistinction to the ultimate result of calculus formation through a gradual process of erosion and penetration from the caliceal surface.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:415-450 (Sept. 29) 1945

Further Reduction in Hospital Infection of Wounds. V. Logue and W. McKissock.—p. 415.
Syndrome Resembling Addison's Disease, with Severe Anemia, Steatorrhea and Melanuria. S. Locket.—p. 417.
Three Cases of Closed Intra-Abdominal Injury. H. N. G. Hudson. —p. 419.
*Risks of Gastroscopy with Flexible Gastroscope. C. M. Fletcher and F. A. Jones.—p. 421.
Treatment of Denuded External Table of Skull. P. Clarkson and J. Schorstein.—p. 422.
Perspex in Orthopedics. J. T. Scales and W. Herschell.—p. 423.
Use of Cautery in Plastic Operations on Eyelids. D. Simpson.—p. 424.

Risks Involved in Use of Flexible Gastroscope.—Fletcher and Jones had 2 fatalities attributable to gastroscopy and 4 cases with pain and fever following gastroscopy. In the first case gastroscopy was probably contraindicated, since the tissues might have been expected to be in a fragile state as a result of recent scurvy. It is possible that the tear was the result of stretching the esophagus by the rigid part of the instrument, since the patient had a slight kyphosis. In the second case extra pressure was exerted when the tip of the instrument was lying in the hypopharynx. When the patient swallows, the instrument should always slip on easily into the esophagus, and it is clearly dangerous to apply pressure if it does not do so. In addition to these 2 fatal cases and the 4 in which severe retrosternal pain and fever followed gastroscopy, the authors have heard of 5 other fatal and 2 nonfatal cases of hypopharyngeal perforation of the esophagus by the flexible gastroscope during the past two years. They stress that inexperienced gastroscopists should appreciate that caution is necessary in the passage of the flexible gastroscope.

Lancet, London

2:357-388 (Sept. 22) 1945

Impetigo Contagiosa in the Army Treated with Microcrystalline Sulfathiazole. R. M. B. MacKenna and E. S. Cooper-Willis.—p. 357.
*"Dead Hand" in Users of Vibrating Tools. E. D. Telford, M. B. McCann and D. H. MacCormack.—p. 359.
Should a Brachial Plexus Injury Be Explored? E. Hambly.—p. 360.
*Tissue Changes Induced by Clostridium Welchi Type A Filtrates. A. H. T. Robb-Smith.—p. 362.
Casualties Following Exposure to Zinc Chloride Smoke. E. H. Evans. —p. 368.
Acute Pulmonary Mycosis: Report of Case. Elizabeth Delikat, with note by S. C. Dyke.—p. 370.

2:389-420 (Sept. 29) 1945

Lumbar Puncture in Treatment of Penetrating Wounds of Brain. J. E. A. O'Connell.—p. 389.
Tsutsugamushi Fever on India-Burma Border. R. N. Tattersall.—p. 392.
Penicillin in Experimental Psittacosis of Mice. S. P. Bedson and H. B. May.—p. 394.
Aspiration Liver Biopsy: Technic and Diagnostic Application. Sheila Sherlock.—p. 397.
Retropulsed Intervertebral Disk Producing Froin's Syndrome: Report of Case. R. R. Hughes.—p. 401.
Interdigital Ringworm Treated with Solution of Sulfurated Lime. T. James.—p. 401.

"Dead Hand" in Users of Vibrating Tools.—Men in engineering works sometimes use a high speed electrically driven tool with 2,900 revolutions per minute. The worker steadies the tool with the right hand, but the heavy part of the work in guiding and holding the tool is done by the left hand, which is the first and usually the only hand to be affected by vascular disturbances. The number of workers who have reported vascular disturbances in the hands is 75 out of 300 who use this high speed tool. Telford and his associates have made a detailed study of 34 of these patients. At the onset a sudden blanching and deadness of one or more fingers occurs. After a variable interval the white stage gives way to a deep leaden cyanosis. Later the cyanotic area becomes mottled with salmon colored patches, which gradually increase and coalesce, leaving the fingers for a time redder than normal. The length of an attack may vary from a few minutes to several hours. If the patient dips his hands in tepid water or brings his body into warmer surroundings, the duration of the attack is considerably reduced. The chief trouble is the loss of sensation and uselessness of the hand during an attack, which causes serious disability. The condition is likely to persist after the man has given up the work. There was no evidence that excessive smoking caused a predisposition to the disease. X-ray examination of the hands of 21 patients did not reveal calcinosis, ulcers of the pulp or acrosclerosis. The rate of revolution and the hardness of the metal are important factors. With soft or heated metal—e. g. hot rivets—and with a speed under 2,000 revolutions per minute the risk is probably insignificant. The use of gloves or rubber pads is not satisfactory because they interfere with accurate control of the tool. An attempt has been made to damp out the vibrations by sheathing the tool in a sleeve of gas mask tubing. This method seems to have possibilities. The working of shorter hours has been suggested, but the result of this probably would be merely to postpone the onset of the disease. It is suggested that workers should not be employed on this type of work for more than nine months. The medical treatment of the condition is unsatisfactory. The most useful advice is to avoid cold to body and hands alike. This is not easy for most workers and is impossible for those in outdoor occupations.

Tissue Changes Induced by Clostridium Welchi Filtrates.—Robb-Smith uses the term gas gangrene in the sense of a clostridial myositis associated with severe constitutional symptoms. There is a preservation of myofibrils but disruption of the sarcolemma and fragmentation of the muscle fibers. The fibers are separated by an edema of the endomysial connective tissue, the reticulin membrane of the muscle fiber is separated from the sarcolemma, and there is partial to complete destruction of reticulin fibrils and collagen fibers, but the elastic fibers are unaffected. There is nuclear karyolysis and the appearance of extracellular fatty droplets, while fat cells show a breakdown to fatty acid crystals. There is no vascular hyperemia, little fibrin formation and no neutrophil cellular reaction; leukocytes in the vicinity of a lesion undergo karyolysis and cytolysis. Comparing these lesions with the changes occurring in human muscle in vitro from the action of Clostridium welchi type A filtrate the author says that they are morphologically identical save for the absence of edema or gas formation. An attempt has been made to analyze these changes in terms of the action of the enzymes known or suspected to be present in the filtrate, and it appears that the alterations are due to effects on cell membranes, cell nuclei, collagen and reticulin, and mucoproteins, and that the myofibril is unaffected. The lack of cellular reaction is not due primarily to the ischemia but to the cytolytic action of the filtrate, and since these changes can be inhibited by antitoxin it is suggested that local injection of antitoxin might be used where it has proved impossible to perform an adequate surgical excision of the affected tissue.

2:421-452 (Oct. 6) 1945

Chronic Fatigue. A. Abrahams.—p. 421.
*Damaged Intervertebral Disk: Early Diagnosis and Treatment. E. J. Crisp.—p. 422.
*Protrusion of Intervertebral Disk. B. H. Burns and R. H. Young. —p. 424.
Lumbago: Mechanism of Dural Pain. J. Cyriax.—p. 427.
Acute Phlegmonous Gastritis. M. Paul.—p. 429.
Leukemoid Blood Reaction: Simulating Acute Aleukemic Leukemia in Case of Phlegmonous Gastritis. C. J. C. Britton and P. T. J. C. P. Warner.—p. 430.
Postoperative Chest Complications: Controlled Study in Hernia and Meniscectomy Operations. F. R. Gusterson.—p. 431.
Congenital Syphilis in Infant Treated with Penicillin. A. Comfort. —p. 432.

Damaged Intervertebral Disk.—Crisp states that clinically cases of damaged intervertebral disk are distinguished by extreme and persistent spasm of the lumbar portion of the erector spinae muscle and hamstring spasm of less severity. When the patient stands erect, little abnormal is noted beyond a slight increase in the lumbar curve, but on bending forward to touch the toes lumbar spasm becomes obvious. This is sufficient to prevent forward flexion in the joints of the lumbar spine, for there is movement only at the hip joints and the upper dorsal region. The patient will complain of aching lumbar pain, which is aggravated by movement and coughing and often radiates into the groin. There is tenderness to deep pressure over the sacroiliac joint and the interspinous ligament of the affected segment. The sacroiliac tenderness often develops first; this may explain diagnostic errors. The author treated these cases by complete rest, either in bed or in a plaster jacket. Results in the cases so treated have been satisfactory. The patients have lost their lumbar pain, they have not developed sciatica and they have been discharged from the hospital in six to eight weeks with some residual, but permanent, stiffness of the back. Cases which escape diagnosis until after the onset of sciatic pain may be divided into two groups, depending on whether the annulus fibrosus is partially or completely ruptured. The former group may be recognized by the fixed lumbar lordosis, the latter by the fixed lumbar kyphosis. Both groups usually respond well to immobilization in a spinal jacket.

Protrusion of Intervertebral Disks.—Burns and Young analyze the records of 604 patients with low back pain on sciatica. The type of injury or work associated with the majority of these cases has been heavy lifting and falls on the buttocks, which include heavy landings in an airplane and tank driving over uneven country. The most constant characteristic of a disk protrusion is restriction of movement in the anteroposterior plane while lateral movement is free. With increased experience the authors diagnose disk lesions more often. They find it necessary to operate on only about 2 of every 5 patients diagnosed as having a disk lesion. When the symptoms are slight they recommend wearing a belt or corset to restrict the movement of the lumbar spine. If the patient is seen in a first attack he is put to bed. In about half the cases the attack will subside. If after three weeks there has been no improvement, operation is recommended. To persist with rest and immobilization in a plaster bed for many weeks often failed to give relief and was a less acceptable procedure than operation. The authors do not favor the plaster jacket because it is much less comfortable and no more effective than a corset. When operation has been decided on, accurate localization of the lesion is desirable, but unfortunately it is not possible because x-ray films, either plain or with contrast mediums, and neurologic signs are of little help. The great majority of protrusions come from the disks between the fourth and fifth lumbar vertebrae or the fifth lumbar and first sacral. The authors use a free exposure because it gives easier access than the small interligamentous approach or a hemilaminectomy. In 177 laminectomies performed for suspected lesions of the disk, protrusions were found in 141. In 19 of the others intraspinal abnormalities were found. Of the 141 with proved disk lesions 131 were immediately relieved and have remained free from symptoms to date.

Medical Journal of Australia, Sydney

2:197-228 (Aug. 18) 1945

If Embley Were to Return. G. Kaye.—p. 197.
Immersion Blast Injuries of Abdomen. C. Keating.—p. 207.
*Blast Injury of Brain. L. Rogers.—p. 209.
Injuries to Ear Due to Blast. R. H. B. Bettington.—p. 210.
Observations on "Crush Injury" Syndrome and Volkmann's Contracture Associated with Severe Brain Injury and Hyperthermia. K. R. Gollan, R. Lemberg and R. A. Money.—p. 212.

Blast Injury of Brain.—Rogers states that structural changes may be produced in the brain or cord of those in the vicinity of an explosion. He reports that a seaman aged 19, after standing close to a 4 inch gun during its discharge, noticed a sudden numbness in the left hand and arm which lasted for about ten minutes. Three weeks later began the first of a series of attacks of numbness and tingling, which, starting in the left hand, spread to the elbow, shoulder and side of the face and were accompanied by involuntary abduction and elevation of the arm, spasm of the face and loss of consciousness for a few minutes. On recovery there was some residual weakness of the left upper extremity, which gradually increased and spread to the leg, and seizures became more frequent, occurring four to six times a day. It was decided to explore the postcentral areas, and a bone flap was turned down in this region. The dura in the posterior part of the field was bulging, and when it was opened the cerebral gyri here were green, widened and elevated over an area about the size of a penny. On incision of the brain in this area a shallow but extensive cavity was entered containing old blood clot. This was removed, and the patient made an uninterrupted recovery; some residual weakness and astereognosis remained. Somewhat similar cases were reported by Mott in the last war, the lesions being discovered at necropsy. It has been suggested that the mechanism responsible for the production of the cerebral lesions is the hydraulic-like pressure transmitted to the cerebrospinal axis in its closed bony walls by sudden compression of the thoracic cage. Such compression must produce violent back pressure on the venous side of the circulation. A sudden rupture of vessel walls may conceivably be caused by the decompression which suddenly succeeds the compression wave.

Practitioner, London

155:193-256 (Oct.) 1945

Recent Advances in Treatment: Medicine. A. P. Thomson and J. Malins.—p. 193.
Cardiology. W. Evans.—p. 198.
Diseases of Liver. L. J. Witts.—p. 205.
Pediatrics. A. G. Watkins.—p. 212.
Dysenteric Disorders. C. C. Chesterman.—p. 217.
Venereal Diseases. L. W. Harrison.—p. 223.
Pulmonary Tuberculosis. L. E. Houghton.—p. 233.

Tubercle, London

26:133-168 (Sept.-Oct.) 1945

Tuberculosis in Greece: Shortage of 15,000 Beds. B. Papanicolaou. —p. 145.
Comments on Total Thoracoscopy. R. Laird.—p. 149.
Pathogenesis of Tuberculosis: Review of A. R. Rich's Book. W. Pagel. —p. 154.
Symptomless Tubercular Lesion. R. Grenville-Mathers and D. Pickering.—p. 161.

Bruxelles-Médical, Brussels

25:815-860 (Sept. 23) 1945. Partial Index

*Late Results of Penicillin Treatment in Experimental Syphilis. A. Bessemans and R. Derom.—p. 821.
Intravenous Anesthesia. C. Mayer.—p. 828.
Fanielle's Method for Treatment of Tuberculosis of the Skin. A. Alechinsky.—p. 838.

Penicillin Treatment of Experimental Syphilis.—Bessemans and Derom report the results of treatment of experimental syphilis in rabbits and mice with massive doses of penicillin. Five thousand Oxford units of penicillin was injected intramuscularly at three hour intervals into the rabbits, the total dose amounting to 320,000 units in eight days. Two hundred Oxford units was injected at the same interval and by the same route into mice, with a total dose of 12,800 units in eight days and a total dose of 18,400 units for eleven and a half days. In both groups complete and permanent sterilization from Treponema pallidum was obtained with this treatment, although it was begun two to twelve months after the onset of the disease in rabbits and three to four months after the onset of the infection in mice. Dissection of parts of the brain and of peripheral lymph nodes was performed three to six months after the completion of the penicillin treatment. These results are in contrast to the negative results obtained by Neymann and Youman with penicillin treatment of late syphilis of the central nervous system in man. It is suggested that differences in the anatomic structure and dissimilarity of the minute pathologic process in the central nervous system syphilis of man may be responsible for these contradictory results.

Presse Médicale, Paris

53:501-512 (Sept. 22) 1945. Partial Index

Sulfuric Oxyquinoline, a Choleretic Product. M. Loeper, J. Cottet, D. Bargeton and J. Parrod.—p. 501.
Sutures of Arteries in War Wounds. E. Curtillet, D. Note, J. Houel and V. Roigt.—p. 502.
*Treatment of Tuberculosis of Larynx with Procaine Hydrochloride Infiltration of Carotid Sinus. R. LeLourd.—p. 503.

Procaine Hydrochloride Infiltration of Carotid Sinus.—LeLourd practiced procaine hydrochloride infiltration of the carotid sinus in 16 cases of tuberculosis of the larynx with ulceration and intense pain. Good results were obtained in 15 patients with repeated injections of 20 cc. of procaine hydrochloride in 1/200 solution. The disappearance of the sinocarotid reflex (whether or not it is accompanied by Horner's syndrome) demonstrates sufficient infiltration. Pulsations transmitted to the needle demonstrate that the injection is made close to the blood vessel. Infiltration of both carotid sinuses may sometimes be required, although relief from pain is often accomplished almost immediately with unilateral infiltration. Primary ischemia may subside rapidly and be followed by secondary vasodilatation, which may still be manifest on the fifth day. As a rule the effect of the infiltration lasts from five to ten days and not longer than twenty days. Infiltration may be repeated for months without losing its effectiveness. In 3 of LeLourd's cases there was complete relief from pain, disappearance of the edema and cicatrization of the ulcerated area. Although the latter effect will not be obtained frequently, infiltration of the carotid sinus is an excellent method of treatment of tuberculosis of the larynx.

Cardiologia, Basel

9:121-240 (Nos. 3 & 4) 1945. Partial Index

*Paroxysmal Tachycardia in Young Child: Paroxysmal Tachycardia Persisting for Months and Caused by Isolated Interstitial Myocarditis of Right Auricle. A. Piotti.—p. 121.

*The Heart in Training and in Excessive Training. A. Delachaux, M. Mamie and G. Aymon.—p. 173.

Variations in Glycogen and Pyruvic Acid of Heart During Electrocardiographic Modifications Observed in Rats with B Avitaminosis: Role of Pyruvic Acid. J. Van Heerswynghels and J. Thomas. —p. 211.

Paroxysmal Tachycardia in Young Child.—Piotti describes clinical and anatomic studies on a child aged 11 months with atrioventricular paroxysmal tachycardia. The first paroxysm lasted twenty-three days. There was a free interval of three days followed by tachycardia which could not be controlled and which persisted for seven months. At the onset of the disease the electrocardiogram of a normal sinus rhythm exhibited a widened and notched P as a manifestation of myocarditis in the right auricle. After the tachycardia had persisted for seven months the P wave became normal although both auricles were greatly dilated. The ventricular complex remained normal in spite of a tremendous hypertrophy and dilatation of the left side of the heart. Microscopic examination of serial sections of the myocardium revealed an interstitial myocarditis of Fiedler's type. It was located exclusively in the right auricle in the region of the sinus bridge fibers (from the Aschoff-Tawara node to the orifice of the sinus coronarius), whereas the sinus node and the entire atrioventricular system and the remainder of the myocardium was free from inflammation and scars. The pericardium, valvular apparatus, endocardium and vessels were unimpaired. The localization of the myocarditis as demonstrated pathologically was in agreement with the electrocardiographic findings. Inflammation of the upper respiratory tract which had preceded the tachycardia was regarded as the possible etiologic factor. Since interstitial myocarditis may be a localized process, examination of serial sections of the myocardium is essential for proof of the infection. Because of the close connection between the myocardial fiber and nerve termination, a differentiation between myogenic and neurogenic origin is impossible in paroxysmal tachycardia.

The Heart in Physical Training.—Delachaux and his co-workers show that physical training produces a number of changes in the human body. In sports involving great endurance changes occur particularly in the lungs, the circulatory apparatus and the products of cellular respiration. Some of these changes protect the heart against overstrain. In the well trained subject the peripheral resistance of the circulation is diminished by neurovascular regulations, while a denser capillary network and a high intracellular hemin level create optimal conditions for metabolic exchange between blood and cells. Consequently the same amount of cardiac energy will supply more oxygen to the periphery in the trained than in the untrained organism. The heart muscle undergoes changes similar to the skeletal muscle changes. Greater vascularization, increase in cellular hemins (which carry and store oxygen) and increase in respiratory products insure protection against oxygen deficiency during exertion. The heart undergoes hypertrophy and dilatation which involves particularly the length of the heart rather than the transverse diameter. This dilatation enables the heart to deliver a large quantity of blood to the periphery without greatly accelerating its rate. Large "athlete's hearts" are rarely observed; at rest their walls are relaxed and show only mild pulsation. During exertion, however, these hearts contract normally and reduce their volume, expelling their residual blood into the circulation. This type of heart is rare; it represents a highly efficient phenomenon of adaptation to exertion and is peculiar to certain constitutional types; it has no pathologic significance. When intensive training ceases, the cardiac volume decreases gradually. After years of an athletic career, the heart of the well trained athlete may show no clinical change, except perhaps an unusual tolerance for exertion. It is the exception for maximal athletic training to cause heart damage in the initially healthy subject. Systematic examination of a number of overtrained athletes revealed only neurovegetative disturbances, which subsided when excessive training was stopped. The "forced" or overstrained heart is the result of an earlier defect aggravated by the athletic exertion. This defect may have been the result of myocarditis, coronary sclerosis, arterial hypertension, anemia or neurovegetative or endocrine factors.

Dia Médico, Buenos Aires

17:988-996 (Sept. 3) 1945. Partial Index

*Gas Gangrene of Gallbladder: Clinical and Roentgenographic Study. A. Pierini.—p. 988.

Gas Gangrene of Gallbladder.—A woman aged 63 with an acute abdominal condition presented a tumor-like mass palpated in the region of the gallbladder. At the operation, described by Pierini, gangrene of the gallbladder and free bile in the peritoneum were found. Fundal cholecystectomy was done, with drainage of the perforated gallbladder. Sulfanilamide was applied locally. Polyvalent antigangrenous serum and intravenous infusions of a 20 per cent sodium chloride solution were administered. The rest of the gangrenous gallbladder was removed through the operative wound ten days after the operation. Gas bacilli were recovered from the fluid of the putrescent gallbladder. The gas bacilli were identified by cultures and by inoculations of mice and guinea pigs. The bile obtained forty-five days and ninety days after the operation did not contain anaerobic bacteria. The patient recovered.

Rev. Med. de Costa Rica, San Jose

12:351-370 (March) 1945. Partial Index

*Dextrose Solution and Vitamin B_1 in Therapy of Vomiting in Pregnancy. A. Acosta G.—p. 370.

Therapy of Vomiting in Pregnancy.—Acosta G. reports good results in 59 of 60 women with severe vomiting of pregnancy. Treatment consisted in daily intravenous injections of 2 cc. of vitamin B_1 in 20 cc. of a 50 per cent dextrose solution. Vomiting was controlled in the majority of the cases after the second injection. Occasionally, a third injection was necessary. The author believes that vomiting of pregnancy is due to two different factors: (1) a lack of antiprotein ferments in the mother's blood with consequent intoxication of the mother with fetal proteins and (2) B_1 avitaminosis. Dextrose solution stimulates formation of antiprotein ferments in the mother's blood, whereas administration of vitamin B_1 controls the avitaminosis.

Semana Medica, Buenos Aires

52:321-346 (Aug. 30) 1945. Partial Index

*Cystic Hematuric Form of Poliomyelitis. F. Albert, R. J. Abuin Figueroa and M. Blanco.—p. 343.

Hematuria in Poliomyelitis.—Hematuria in poliomyelitis has been previously reported only in the preagonal stage. Albert and his collaborators observed hematuria in several patients during the 1942 epidemic. Patients with hematuria presented also paraplegia of the legs, alone or associated with paresis of the arms. The consequent atrophy of the legs was severe. The patients did not have dysuria or renal or gastrointestinal disorders. The course of the neuromuscular lesions was not influenced by the hematuria. The general condition of patients in the course of the hematuric phase was good. Hematuria as a complication of poliomyelitis occurred within the first month of the disease. The urine was normal except for the presence of blood. Some cases of hematuria were complicated by urinary retention. Catheterization in these cases was not followed by hematuria. Blood pressure was normal. In some cases hematuria reappeared after several days with normal urinary secretion. The prognosis is benign, as hematuria both primary and recurrent disappears spontaneously and without treatment. The authors believe that this form of hematuria depends on a selective localization of the poliomyelitis virus in nervous tissues which elicit a transient neurogenic reaction of the bladder, with consequent hematuria.

Book Notices

American Red Cross First Aid Textbook. Prepared by the American Red Cross for the Instruction of First Aid Classes. Revised edition. Paper. Price, 60 cents. Pp. 254, with 264 illustrations. Philadelphia: Blakiston Company, 1945.

The American Red Cross has made available a completely revised version of its first aid textbook, a work that has circulated in millions of copies. More care and expert attention have gone into the preparation of this book than have ever been accorded any similar work. As stated in the preface, the cooperation of the Committee on Surgery of the Division of Medical Sciences of the National Research Council was secured together with that of experts in some of the other medical specialties. Each of the chapters was carefully reviewed and often rewritten by a physician known for his expert knowledge of the subject. The text when completed was then turned over to the Committee on Information of the Division of Medical Sciences, the chairman of which committee gave it a final reading and again edited it. The rewritten text was then referred to the surgical experts and to the staffs of the Office of the Medical Director and of the First Aid, Water and Safety and Accident Prevention Service of the American Red Cross for further review. All of those who participated in this project are given special acknowledgment by name in the new edition. The book differs in appearance from previous editions principally in improved illustrations, better printing and better typography, especially in the use of italics and boldface for emphasis. There is a good index; the book is substantially bound with staples and a cover of water repellent, though not entirely waterproof, paper. Review questions as to what to do and what not to do at the end of the chapters are extremely useful. This book should be very valuable wherever first aid is taught and as a reference book in homes, schools and industry.

Health Instruction Yearbook 1945. Compiled by Oliver E. Byrd, Ed.D., *Associate Professor of Hygiene, School of Health, Stanford University.* Foreword by Walter H. Brown, M.D., Acting Dean, School of Public Health, University of California, Berkeley. Cloth. Price, $3. Pp. 344. Stanford University, Calif.: Stanford University Press; London: Oxford University Press, 1945.

This is the third yearbook by Professor Byrd. Previous editions have been reviewed in THE JOURNAL as issued. The only serious criticism is one which was made by THE JOURNAL with relation to both the 1944 and 1943 yearbooks, namely that they are badly dated. The title itself and the arrangement of the type lead to the conclusion that this is a yearbook covering 1945. Actually it is a yearbook which appears in the fall of 1945. There must have been at least four months between the completion of editorial work and the appearance of the book. Thus it is to a great extent actually a 1944 yearbook containing little material for 1945 and what little it does contain referring only to the first few months. The book contains 316 articles of varying length. Somewhat less than a page is the average length, though some run to several pages. Beginning with articles in chapter one, under the general title of Health as a Social Accomplishment, the book runs through twenty chapters ending with one on trends and probabilities. It gives a good coverage of the public health field, and the articles in general are well selected, useful, diversified and well abstracted. As is pointed out in the preface to this edition, the successive issues will, within a few years, form a useful reservoir of source material which otherwise would be widely scattered through the literature. This book is so useful that it seems too bad that the author and publishers are obdurate in maintaining their unfortunate and misleading dating. The longer they maintain it, the more difficult it will be to correct.

The Afterglow. By Frank G. Nifong. Fabrikoid. Privately Printed. Pp. 347, with 1 illustration. Columbia, Missouri: Aircraft Press, 1945.

Among the leaders of medicine in Missouri have been the several generations of the Nifong family. Dr. Frank G. Nifong tells the story of the family in this privately published volume. His relationships with medical organizations have been intimate, and he has for years been a leader in medical education and in carrying health to the people of his community. His autobiography is a true reflection of his character and his work.

Photosynthesis and Related Processes. Volume I: Chemistry of Photosynthesis, Chemosynthesis and Related Processes in Vitro and in Vivo. By Eugene I. Rabinowitch, Research Associate, Solar Energy Conversion Research Project, Massachusetts Institute of Technology, Cambridge, Massachusetts. Cloth. Price, $8.50. Pp. 599, with 63 illustrations. New York: Interscience Publishers, Inc., 1945.

The "most important of all biological processes," as the author designates photosynthesis, was last reviewed in 1926. Volume I of this present planned two volume work contains largely chemical material, together with a brief review of early important research work, and is divided into part I, on the chemistry of photosynthesis and related processes, and part II, on the structure and chemistry of the photosynthetic apparatus. Since the preceding review, twenty years ago, several new avenues of approach to the problem of photosynthesis have been developed, such as oxygen liberation by isolated chloroplasts, synthesis in bacteria, the effect in certain algae of substituting new substrates for carbon dioxide and water, the use of flashing light, feeding isotopes such as heavy hydrogen, studies in fluorescence of living plants, use of the electron microscope and numerous other new biochemical and physical methods not peculiar to this particular problem. This well written comprehensive monograph contains numerous equations, tables, charts and diagrams. At the end of each chapter a bibliography is arranged in chronological order dating back to work as early as 1776. A valuable author index to the volume lists also the contribution of each scientific worker.

Handbook of Physiology and Biochemistry: Originally "Kirkes'" and Later "Halliburton's." By R. J. S. McDowall, M.D., D.Sc., M.R.C.P., Professor of Physiology, University of London, King's College, London. Thirty-Eight Edition. Cloth. Price, $6. Pp. 898, with 305 illustrations. Philadelphia: Blakiston Company; Edinburgh: Oliver & Boyd, Ltd., 1944.

The thirty-eighth edition of any book deserves comment. The volume under review was originally (1848) the work of William S. Kirkes and later of a number of authors until 1896, when Professor Halliburton became its responsible writer. In 1928 R. J. S. McDowall assumed charge, and the current edition represents his work. This book apparently owes its long life and perennial success to the fact that it presents the basic subject matter of physiology in a simple, direct and fairly complete way. The present edition introduces considerable biochemistry and retains a good deal of gross and microscopic anatomy. It is printed on "wartime paper," but otherwise the mechanical aspects of the book are satisfactory. Interest in it will probably be limited to beginning students, because it is not well documented and it fails to present much of the more recent contributions to knowledge in physiology.

The Dice of Destiny: An Introduction to Human Heredity and Racial Variations. By *David C. Rife, Ph.D., Associate Professor of Zoology,* Ohio State University, Columbus, Ohio. Cloth. Price, $1.75. Pp. 163, with 23 illustrations. *Columbus: Long's College Book Company,* 1945.

The figurative title of this book masks a work for the public on heredity. By the dice of destiny the author means the genes which determine inheritance of both physical and mental qualities. The author discusses the blood groups, the inheritance of physical traits, twins, mental capacity, personality and similar subjects. A final chapter on the genes and democracy emphasizes the view of the author that education of the heart is essential for human security. Intellectual education and scientific achievements will give us a better world in which people will live joyfully if men are motivated by the spirit of brotherly love.

Recent Advances in Neurology and Neuropsychiatry. By W. Russell Brain, M.A., D.M., F.R.C.P., Physician to the London Hospital, London, and E. B. Strauss, M.A., D.M., F.R.C.P., Physician for Psychological Medicine, St. Bartholomew's Hospital, London. Fifth edition. Fabrikoid. Price. $5. Pp. 363, with 32 illustrations. Philadelphia: Blakiston Company, 1945.

This is one of the most practical and popular treatises on recent advances in neurology. It should be in the hands of every general practitioner, neuropsychiatrist and neurosurgeon. It presents new facts on electric shock therapy in mental diseases, a discussion of prefrontal leukotomy, peripheral nerve injuries, vascular changes after chilling, a syndrome of neuritis of the shoulder girdle, the use of penicillin and an ample discussion of electroencephalography. It is extremely up to date, is well written and is highly recommended.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

CLIMATE AND SINUSITIS

To the Editor:—A patient has chronic sinusitis and wishes to move to some point in the United States where he might obtain some relief. Would you send any available information as to favorable climates or locations.

Martin J. Rosten, M.D., Silver Creek, N. Y.

Answer.—The ideal and therefore most favorable climate would be the one in which there would be the least variability between the morning and evening temperatures (not less than 68 F. nor more than 75 F.), normal relationship between temperature and humidity, and finally just sufficient velocity of the wind to impart "life" to the air, thus giving one a sense of well-being.

This ideal can rarely be realized, but there are a number of locations that might approach it. Florida, southern California or perhaps Arizona should be seriously considered. If the patient is free of allergy, he could take a vacation in one of these areas. It is of the utmost importance to remember that the patient will have to allow time to accustom himself to the new atmospheric environment before any conclusions can be drawn. If, after a sufficient time has elapsed, the patient has not improved, another climate might be tried.

The value of favorable climates does not rest on any curative power in the air per se but on the fact that the patient is away from his former environment and is not now subjected to the inclemencies of weather with sudden changes in temperature, humidity and wind velocity.

All climatologists feel that no one climate can be suitable for all persons; hence the necessity for attempting to determine whether any given location is favorable or unfavorable.

RESUSCITATION OF NEWBORN INFANTS WITH ALPHA-LOBELINE

To the Editor:—Alpha-lobeline has been used in the obstetric department in the Pierce County Hospital, Tacoma, Wash., for the resuscitation of infants with asphyxia neonatorum. The use of this product has become routine and the value of the drug has been accepted without any question or without any skepticism. However, my knowledge of the drug Lobelia, remembering that it belongs to the tobacco family, caused me to question the alleged efficiency of the drug as claimed by the pharmaceutical firm that markets it. We recently lost an infant born by cesarean section in a case of actively bleeding placenta previa. The child lived for about seven hours. The trachea was freed of mucus by aspiration through a catheter and oxygen inhalations were given prior to the administration of the alpha-lobeline. Some authorities state that the drug, within one-half hour or so, is followed by symptoms of depression of respiration. The information that I desire is this: Are we warranted at all in using this drug for this purpose and am I, as superintendent, warranted in forbidding its use within the hospital and if so, on what grounds?

Burton A. Brown, M.D., Tacoma, Wash.

Answer.—The Council on Pharmacy and Chemistry issued a preliminary adverse report on alpha-lobeline in 1927 (The Journal, Aug. 27, 1927, p. 693) and a report of rejection in 1933 (June 17, 1933, p. 1933). The pharmacologic investigation of Norris and Weiss (*J. Pharmacol. & Exper. Therap.* **31**:43 [May] 1927) had shown that the pharmacologic properties of alpha-lobeline are essentially the same as those of the amorphous impure alkaloid or of extracts of the lobelia inflata, that the emetic, respiratory and vasomotor actions of alpha-lobeline are similar to those of nicotine and that carbon dioxide and oxygen mixture is a more efficient and safer respiratory stimulant than alpha-lobeline. These conclusions have been confirmed by further experience. Goodman and Gilman (The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1941, p. 495) state that "the early enthusiastic reports on the value of lobeline as a respiratory stimulant and analeptic have not been substantiated and the drug is too dangerous and uncertain in action to warrant its employment in preference to more effective and safe therapeutic agents." Sollmann (A Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1942, p. 441) concludes, tersely, "safe doses are not reliable and effective doses are not safe." Clinically, the stimulation is often complicated by nausea and vomiting, sometimes with severe collapse and Cheyne-Stokes respiration. Current textbooks of obstetrics also reflect a negative attitude toward its used. De Lee (Principles and Practice of Obstetrics, Philadelphia, W. B. Saunders Company, 1938, p. 920) gives a tempered approval: "Lobeline hydrochloride is a valuable addition to our remedies. It is used to inaugurate the initial respiration or stimulate flagging ones. . . . The result is sometimes dramatic, the baby gets rigid, then gives a deep gasp. Its effects last only a few minutes." Adair (Obstetrics and Gynecology, Philadelphia, Lea & Febiger, 1940) states that a series of drugs which includes alpha-lobeline "have all proved uncertain in their effects." Stauder (Williams Obstetrics, New York, Appleton-Century Company, 1940, p. 1110) writes "Alpha-lobeline has been suggested in the treatment of asphyxia neonatorum. Its effect as a respiratory stimulant is open to question." Titus (The Management of Obstetric Difficulties, St. Louis, C. V. Mosby Company, 1945, p. 894) reports that the advisability of using such drugs has been so questioned by Cole that the propriety of their use is decidedly questionable. He says their use as a stimulus to respiration is immediately followed by a corresponding or even greater depression. Beck (Obstetrical Practice, Baltimore, Williams & Wilkins Company, 1942), Davis (Gynecology and Obstetrics, Hagerstown, Md., W. F. Prior Company, 1934) and Schumann (Textbook of Obstetrics, Philadelphia, W. B. Saunders Company, 1936) do not even mention alpha-lobeline in the treatment of asphyxia.

These citations bear out the conclusion that alpha-lobeline is a potent but uncertain and always dangerous drug, without material advantage over the safer and equally or more effective measures that are now generally employed for resuscitation.

HAZARDS FROM PHENOTHIAZINE

To the Editor:—Does phenothiazine, used as anthelmintic in livestock, have any deleterious effects on persons who work with it a great deal? What damage may they suffer? Are the effects cumulative?

A. I. Arneson, M.D., Morris, Minn.

Answer.—Photosensitization may result from the absorption of phenothiazine, and exposure to sunlight then produces a dermatitis. This has been reported in orchard workers using the insecticide in sprays. Symptoms include intense itching, irritation and reddening of the skin, sometimes with edema and secondary infection. The agent is absorbed only through the alimentary or respiratory tract, and not through the skin, and for this reason the wearing of a protective mask by exposed workers has been suggested. Also of value is the avoidance of sunlight by protective clothing or ointments.

Except for photosensitization, the hazard is slight. As a urinary tract antiseptic, nearly 100 Gm. in four months has been taken without deleterious effect by some persons, but in others a secondary anemia has been produced. This has led to the suggestion that actual systemic therapy with the drug be limited to courses in which the total dosage is less than 15 Gm. Undesirable effects could not be demonstrated on the gastrointestinal tract, circulation, kidneys or liver of man or experimental animals.

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DeEds, Floyd; Wilson, R. H., and Thomas, J. O.: Photosensitization by Phenothiazine, The Journal, May 25, 1940, p. 2095.

EMBOLISM, HYPOPROTHROMBINEMIA AND OBSTRUCTIVE JAUNDICE

To the Editor:—I wish to know if there are any studies of statistical significance comparing the incidence of pulmonary embolism in the postoperative course in patients with obstructive jaundice against those without jaundice. These figures should be for the period before the advent of vitamin K. Such studies might throw a clearer light on the rationale of using dicumarol for prevention of pulmonary embolus in thrombophlebitis and phlebothrombosis.

Captain, M. C., A. U. S.

Answer.—The query is obviously directed toward the influence of the hypoprothrombinemia in obstructive jaundice on postoperative thromboembolism. Statistics which would indicate a lessened incidence of postoperative thrombosis in patients with obstructive jaundice as compared to a similar group of patients without jaundice are not available. Their value, however, would be questionable, since it is known that many patients with obstructive jaundice have a normal concentration of prothrombin (Quick, A. J.: Stanley-Brown, Margaret, and Bancroft, F. W.: *Am. J. M. Sc.* **190**:501 [Oct.] 1935. Rhoads, J. E.:

Surgery **5**:794 [May] 1939. Pohle, F. J., and Stewart, J. K.: *J. Clin. Investigation* **19**:365 [March] 1940). These authors and some others have indicated that the hypoprothrombinemia is not proportional either to the intensity or to the duration of the jaundice. Also since the hemorrhagic level of prothrombin is below 20 per cent of the normal, many patients with jaundice have small reductions which would not necessarily protect them from postoperative clotting. The question of the correspondent, however, opens up another problem. Does a high grade hypoprothrombinemia in man really prohibit the occurrence of clotting? Some patients with advanced cirrhosis of the liver and with ulcerative colitis exhibit a severe hypoprothrombinemia, in spite of which thrombosis developed in the calf muscles. While prothrombin is an important factor in the process of clotting, this mechanism may still operate in the presence of diminished quantities of prothrombin.

DIAGNOSIS OF ALLERGIC RHINITIS

To the Editor:—A woman has had hay fever-like symptoms for a few years in succession about the middle of August. She is affected only at night when it gets colder outside and invariably feels better during the day, especially when it is sunny. She was tested by scratch and injection method both by a good allergist and by me and does not respond to hay fever. She has a lot of hydrangeas (snowballs) around her summer home in Peekskill, N. Y., and they are blooming now. Could the hydrangeas be the cause? Should she be tested with other pollens growing in that locality? I want to stress again the point that she feels better during the day, which would seemingly eliminate pollen as the cause of this condition. Besides having rhinitis she also has aches in the limbs and body as present usually in grip.

M.D., New York.

Answer.—To diagnose this condition properly one must make a complete investigation not only of the patient but of the patient's environment. Pollen sensitivity cannot be definitely ruled out despite the inquirer's statement that "the patient does not react to hay fever." There are patients encountered occasionally who have negative skin reactions with ragweed pollen or who react only when examined with concentrated ragweed solution intradermally but whose symptoms are nevertheless due to ragweeds. In addition, other pollens and other inhalant materials present primarily during August (lamb's quarter, for example) should be considered. There is also the possibility of exposure to an excessive amount of molds during August and September because of local conditions around the patient's home. Other inhalant allergens peculiar to the vicinity of the patient's home or to the home itself may contribute to symptoms only during this season.

Regarding the question of the possibility of hydrangeas being the cause of the patient's trouble, that, while not impossible, is a very unlikely assumption. The patient would have to be within a few feet of the hydrangeas or would have to have her house or her room profusely filled with these flowers to have symptoms from them.

PENICILLIN FOR CHRONIC TONSILLITIS

To the Editor:—Can penicillin be used in the treatment of chronic tonsillitis?

Hyman Sherman, M.D., Brooklyn.

Answer.—It would be best perhaps to define what is meant by chronic tonsillitis. If by the term is meant enlarged tonsils or chronically reddened ones or tonsils with crypts containing caseous plugs, then the use of penicillin is apt to be without effect. If by chronic tonsillitis is meant one of these plus acute flare-ups characterized by sore throat, increased redness or fever, penicillin during these exacerbations may be of considerable benefit. There is not much likelihood, however, that the use of penicillin can restore a hypertrophied or a chronically infected tonsil to a normal condition or that it will favorably affect the presence of caseous plugs. In using penicillin repeatedly for conditions not apt to be improved by its use such as described, it should be borne in mind that the patient may develop a more serious condition later that may be penicillin resistant. Hence penicillin ought not to be used for trivial infections.

AIR DISINFECTION IN HOSPITALS

To the Editor:—Are any of the methods of air sterilization recommended for general use in hospitals and nurseries?

Martha O'Malley, M.D., Boston.

Answer.—Treatment of floors and bedclothes with oil emulsions to hold down infected particles of dust and lint has proved of sufficient value in military barracks and station hospitals to recommend trial in civilian hospitals. Other methods of air disinfection are still in the experimental stage. High intensity ultraviolet irradiation is fairly effective against droplet nuclei, but its use at present is limited by harmful effects on the eyes and skin. There is not good evidence that glycol aerosols accomplish much under practical conditions of room occupancy. The use of antiseptic mists is also limited by toxicity, odor or corrosiveness to metals and clothing.

IMPAIRED VISION FOLLOWING MEALS

To the Editor:—Frequently I find that patients have impaired vision following a meal; their vision is hazy. Could this be due to an increase in blood sugar? During the past twenty-five years many of my patients with diabetes have complained of impaired vision, especially when the blood sugar is high.

William V. Vandervoort, M.D., Battle Creek, Mich.

Answer.—So far as the increase in blood sugar following a meal is concerned, evidence is not readily available to substantiate the theory that impaired vision is caused thereby. According to Adler the retina rapidly utilizes sugar, and the retina "splits" much more sugar than does any other tissue. Many observers have reported alterations in the refractive power of the eye in patients with diabetes which probably vary with the sugar content of the blood. Certain observers have stated that this variation is as much as 5 diopters. It is also known that an autotoxemic amblyopia may be associated with diabetes. Some patients with visual complaints difficult to attribute to a specific cause have circulatory and toxic disturbances which probably affect their vision. There is a possibility that, after drinking tea or coffee with a meal, contraction of the retinal vessels might impair vision in certain persons with a tendency to vasospasm. Patients with impaired vision following a meal might have an allergy to certain foods.

DIABETES AND LYMPHATIC LEUKEMIA

To the Editor:—A man aged 67 has had diabetes mellitus for twelve years, during which time he has taken insulin daily in doses up to 60 units; he has also been on a high fat, low carbohydrate diet. About six months ago a diagnosis of chronic lymphatic leukemia was made, and at the same time the amount of sugar in his urine began to drop and the required dosage of insulin was gradually diminished until at present he is taking 15 units every second or third day. At the same time he has been able to increase his carbohydrate intake. Is there any physiologic explanation?

Carlos E. Kemper, M.D., Viborg, S. D.

Answer.—Is the improvement in the diabetes not due to the advent and advance of the lymphatic leukemia, which may have resulted in less intake of food and consequent reduction in weight? Such a condition is sometimes seen in tuberculosis and cancer, particularly if the latter involves the liver. Lymphatic leukemia is rare in diabetes and diabetes rare in lymphatic leukemia, as found by consultation of the literature of both diseases and by the personal interrogation of physicians concerned in their treatment.

ENLARGED SPLEEN AND MALARIA

To the Editor:—A young man suffered an attack of acute infectious mononucleosis fifteen years ago and his spleen has remained enlarged, one and a half fingerbreadths below the margin of the ribs, ever since. He has otherwise been in excellent health with normal blood count. Should this young man for some reason or other go to some tropical country where he may acquire malaria or some other tropical disease affecting the spleen, would he be running a greater than average risk of succumbing to the infection?

M.D., New York.

Answer.—Enlargement of the spleen as a result of an acute infectious mononucleosis does not alter susceptibility to malaria. If the man is contemplating travel or employment in a tropical area, the fact that there is an enlarged spleen should not influence his decision particularly as far as malaria is concerned.

INHIBITING EFFECTS OF AUTOLYZED BACTERIA ACTION OF PENICILLIN

To the Editor:—The effect of sulfonamides is known to be eventually diminished by an inhibitor substance, para-aminobenzoic acid, liberated from autolyzed bacteria. I wonder whether anything similar might happen while using penicillin. Is there anything known about that subject?

M.D., Bolivia.

Answer.—There is nothing known about the inhibiting effect of autolyzed bacteria on the action of penicillin except in the case of the colon bacillus. Extracts of Escherichia coli are capable of inactivating penicillin in vitro. There is no evidence that this phenomenon is operative in the treatment of human infections.

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

Vol. 130, No. 4 — Chicago, Illinois — January 26, 1946

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SHOCK AND REFRIGERATION

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and
FREDERICK M. ALLEN, M.D.
New York

In war, problems of shock and trauma attain even more than their usual importance. A more general understanding of the newer ideas and methods may sometimes improve therapeutic results.

In 1939 Allen[1] proposed the theory of a dual mechanism in shock. The physical factor is evident in cases in which the edema of injured tissues withdraws sufficient fluid from the circulation to account for death, without an assumption of a toxic factor. On the other hand, severe shock can be fatal with a smaller local fluid extravasation, and the toxic explanation seems obligatory when death occurs after injections of plasma or other fluid have maintained an adequate circulatory volume at all stages. The desired direct proof of the toxic hypothesis has been furnished in the demonstration by the Chambers group[2] of circulating substances with vasoexcitor or depressor properties corresponding to the different stages of shock. The variable picture of shock may therefore be partly accounted for by varying proportions of these two factors in different cases, and the response to treatment may perhaps vary accordingly. The physical factor forms the basis of the prevailing treatments of shock, in which the fluid migration is compensated by fluid administration or, when possible, prevented by local pressure.

The first world war gave origin to the theory that fluid replacement must be in the form of plasma or an equivalent colloid solution and that crystalloid injections are harmful because of flushing additional plasma protein out of the circulation. Davidson and Underhill[3] having made no comparisons of the benefits of saline solution and plasma, the first contradiction of the universally accepted doctrine was furnished by animal experiments[1] proving isotonic solution of sodium chloride to be equal or superior to plasma for shock. This result was confirmed by some writers[4] but disputed by others, chiefly because of deficiencies in quantity or timing of injections or hemorrhagic or other complications in their experiments.[5] Using standardized burns in mice, Rosenthal[6] furnished convincing proof of the equal efficacy of plasma and equivalent quantities of sodium salts in noncolloid solution, also of plasma or serum administered by vein, stomach or peritoneum. Fox,[7] following and confirming Rosenthal, contributed analyses showing the origin of the protein of exudates to be from breakdown of injured local tissues, thus disproving the supposed essential role of plasma proteins.

The points of superiority of isotonic solution of sodium chloride over plasma, as stated by Allen,[1] are that it is more conveniently and abundantly available, is tolerated safely in larger quantities and passes most readily into the tissues to supply their specific need for fluid and salt. After six years this view has been accepted in an official memorandum,[8] which prescribes treatment of burns with larger volumes of fluid than could be supplied with due rapidity in the form of plasma even if it were available. The attempt, however, to distinguish the small fraction of fluid given in the form of plasma as serving "to restore blood volume and to treat shock" appears as an indefensible relic of the colloid theory. There was no difficulty in maintaining blood volume with salt solution in shock or burns.[9] Since the specific physical process in shock is the edema and exudation in injured regions, as just explained, the large volume of salt solution which supplies this need is the specific shock treatment. Also the latter half of the quotation implies that the only specific virtue for shock treatment is contained in the small amount of plasma protein, which is now known to be untrue. This wrong theory can sometimes lead to fatal results in practice, because the administration of plasma as emergency treatment in the critical collapse stage is encouraged, whereas the first disproof[10] of the doctrine of irreversibility of advanced shock was accompanied by the demonstration of better recovery with saline solution than with plasma in dogs dying from either tourniquet shock or burns.

Though ranking all sodium salts essentially on a par, Rosenthal and Fox gave a slight preference to the lactate especially as being least nauseating for oral administration. Among the errors of other authors

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From City Hospital.

Paper published under the auspices of the Section on Surgery, General and Abdominal.

[1] Allen, F. M.: Physical and Toxic Factors in Shock, Arch. Surg. **38**: 155-180 (Jan.) 1939; Theory and Therapy of Shock: Reduced Temperatures in Shock Treatment, Am. J. Surg. **60**: 335-348 (June) 1943; Excessive Fluid Administration, ibid. **61**: 79-92 (July) 1943; Varied Fluid Injections, ibid. **62**: 80-104 (Oct.) 1943.

[2] Chambers, R.; Zweifach, B. W.; Lowenstein, B. E., and Lee, R. E.: Proc. Soc. Exper. Biol. & Med. (Oct.) **56**: 127-129, 1944, Surg., Gynec. & Obst. **80**: 593-608, 1945.

[3] Davidson, E. C.: Sodium Chloride Metabolism in Cutaneous Burns and Its Possible Significance for Rational Therapy, Arch. Surg. **13**: 262-277 (Aug.) 1926. Underhill, F. P.: Ann. Surg. **120**: 367-376, 1944.

[4] Katz, L. N.; Friedberg, L., and Asher, R.: Am. J. Physiol. **140**: 65-71, 1943. Scott, C. C.; Worth, H. M., and Robbins, E. B.: Comparative Value of Some Blood Substitutes Used for Treatment of Experimental Shock, Arch. Surg. **48**: 315-318 (April) 1944.

[5] Details are given in another paper (Allen, F. M.: J. Internat. Coll. Surgeons, September-October 1945) and still more fully in a contemplated small monograph.

[6] Rosenthal, S. M.: Pub. Health Rep. **58**: 513-522, 1429-1436, 1943; **59**: 637-658, 1944; **60**: 373-381, 401-419, 1945.

[7] Fox, C. L.: Oral Sodium Lactate in Treatment of Burn Shock, J. A. M. A. **124**: 207-212 (Jan. 22) 1944. Fox, C. L., and Keston, A. S.: Surg., Gynec. & Obst. **80**: 561-567, 1945.

[8] Harkins, H. N.; Cope, O.; Evans, E. I.; Phillips, R. A., and Richards, D. W., Jr.: The Fluid and Nutritional Therapy of Burns, J. A. M. A. **128**: 475-479 (June 16) 1945.

[9] Allen.[1] Rosenthal.[6]

[10] Allen (footnotes 1 and 5).

are comparisons only of equal volumes of plasma and various salt solutions, whereas therapeutic instructiveness consists in comparing the optimal results obtainable with each material. Using the least complicated forms of shock and optimal quantities and timing, the results with plain saline solution were found superior[1] to the best obtainable with pure plasma, and the later claims of improvement by additions of bicarbonate, succinate, fumarate and so on constitute an interesting but unsettled question, owing to differences in methods.

Parenteral injections of nutrient substances may be helpful in the postshock period, but their general use during the shock crisis should be condemned. In rare instances of extreme malnutrition or desiccation a solution of glucose in water may supply food and fluid without contributing to a possibly dangerous excess of salt; but in advanced shock there is danger of increasing mortality by dilution of the vital electrolytes.[11] Also in average patients with shock of such severity as to preclude mouth feeding, the frequent advice to improve strength or assist liver function by adding glucose or amino acids to the saline injections implies an inadequate grasp of metabolic laws. Glucose excites a moderate and amino acids a pronounced rise of metabolism, entailing an increased tissue demand for oxygen in a condition in which anoxia is the chief danger and the blood is already loaded with products of incomplete combustion of these same substances. Such a patient needs a fall of metabolism to a minimum fasting level, the principle being the same as in the reduced temperature treatment.

The converse to fluid administration, introduced by Patey and Robertson[12] in England in 1941, consists in reduction of exudation by pressure of casts or elastic bandages applied to a local region from which shock originates. Benefits to the extent of saving life may be accomplished by this and by the corresponding method of chemical sealing or mechanical compression of burns. These methods have been so widely adopted and rightly approved that only a brief mention is necessary of incidental disadvantages, such as the pressure necrosis of poorly nourished tissues and incubation of bacteria by warmth and moisture. These defects have required modifications of the treatment of burns, and they may receive notice in the course of further experience with limb trauma.

The demonstration of the inhibition of shock by reduced temperature[1] was the first break in the universal tradition of warming shocked patients or their injured parts. The subsequent confirmations, cited elsewhere,[5] are so numerous and harmonious that the briefest summary may suffice here.

The treatment of shock by reduction of the general body temperature was originated by Temple Fay[13] in clinical observations begun in 1940 and first reported in a panel discussion in 1942. Though this report mentions extreme reductions of rectal temperature to about 90 F., the original case records show more frequently 94 to 96 F., and the latter represent the probable ideal temperatures according to the most recent animal experiments. The method is precisely opposite to the tradition of blankets, hot water bottles and electric light cradles. Light covers or mild cooling are used according to the environmental temperature. The rationale is clear, namely the reduction of exudation and probably of toxin formation, the more liberal blood supply to vital organs by constriction of superficial vessels, and especially the relief of anoxia by reduction of total metabolism. Therefore the cooling merely sustains or assists the slight hypothermia which is part of the natural reaction to shock, and it stops short of discomfort and especially shivering, which increase metabolism and aggravate shock. Both clinical and experimental observations now leave no doubt that the difference between high and low environmental or bodily temperatures can amount to the difference between life and death in shock.

The more radical refrigeration which can be applied to local regions has correspondingly powerful effects. It prevents pain and primary shock and thus can serve for operative anesthesia. Also, by temporarily arresting all local metabolism, it inhibits secondary shock and all local reactions to injury. Besides the reduction of the physical factor of exudation, there is halting of production and great diminution of absorption of all kinds of toxins, so that hypothermia is the only known treatment which can affect the toxic factor in shock. There is agreement in recent literature that these effects are sufficient to save life in suitable cases. In addition, the reduced temperature can augment the benefits and remedy the defects of the pressure treatment. Alone or combined with pressure, the cooling may range from near freezing in a crisis to the moderate degree obtainable by the wetting of thin dressings with water or alcohol or exposure to cool air or a fan current. There is no excuse for elevation of temperature in any shock treatment, and the need for cooling is increased by hot weather or a febrile complication.

The action of cold is unique in inhibiting not only pain, edema and shock but also tissue devitalization, infection and intoxication. The treatment therefore continues to find wider uses for conditions which frequently include shock but also emphasize these other properties.

The first clinical use, namely for operative anesthesia, was described[14] in 1937 but did not receive a large scale trial[15] until 1941. The reduction of mortality in poor risk amputation cases by avoidance of shock and various complications has become familiar through many independent reports. A few misapprehensions may be corrected by a reminder that prevention of hypotension by special measures during spinal or other anesthesia has no influence on secondary shock and that a shockless thigh amputation is impossible except under refrigeration. The ability of patients to enjoy full meals immediately before and after refrigeration operations is a small illustration of the difference from other methods. The exceptionally low mortality statistics of a few operators are prima facie proof that their class of patients were strong enough to withstand shock; and if they find reasons for preferring other anesthetics under these conditions, at least the saving of many formerly "inoperable" cases by refrigeration is now established by sufficient testimony.

A form of benefit which nobody has questioned is the checking of intoxication in infected gangrene. When operation must be deferred because of a moribund condition, refusal of consent or other causes, the simple packing of such an arteriosclerotic limb in ice often transforms the condition dramatically within one or two days. The gangrene itself is kept temporarily stationary but is never cured by refrigeration. The respite gained for improving strength may amount to several days or several weeks, but ultimately pain and progressive necrosis return. If permission for amputation is assured, a still more absolute control is obtained by a permanent tourniquet or by McElvenny's[16] plan of solid freezing in preparation for amputation at a higher level.

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[11] Allen, F. M.: Theory and Therapy of Shock: Excessive Fluid Administration[1]; Varied Fluid Injections[1] Rosenthal.[8]

[12] Patey, H. D., and Robertson, J. D.: Lancet **1**: 780-782, 1941.

[13] Fay, T.: *Pennsylvania M. J.* **46**: 332, 1943; Cooling in Shock, Correspondence, J. A. M. A. **121**: 1109 (March 27) 1943.

[14] Allen, F. M.: Tr. A. Am. Physicians **52**: 189 194, 1937.

[15] Crossman, L. W.; Ruggiero, W. F.; Hurley, V., and Allen, F. M.: Reduced Temperatures in Surgery, Arch. Surg **44**: 139 156 (Jan.) 1942

Closely related to this is the control of dangerous infections in limbs without arteriosclerosis. There is evidence that the chilling extends deeply enough to produce considerable effects on bacterial activity and toxic absorption, even without a tourniquet. The latter should be used in cases of expected amputation but not otherwise, and it should remain in place until after the amputation. The ice pack should extend all the way to the axilla or groin, to control invisible extensions of infection above the tourniquet. With or without a tourniquet, the purpose is usually a temporary arrest of an overwhelming invasion, affording an interval for building up resistance or for serum or other treatments. The most important infection of this class is gas gangrene, and here an added specific benefit seems promised by the high oxygenation of refrigerated blood and tissues, which should be particularly inimical to anaerobes, together with the control of pain, necrosis, bacterial multiplication and toxic absorption. Successful cases were known first to Temple Fay and later ones have been known to ourselves. The report by Ferguson[17] furnishes an example in naval service, and publication of other cases is expected.

Embolism of limb arteries has been treated with refrigeration only at a late stage in order to avert impending gangrene when weakness or cardiac or other complications contraindicated immediate operation.[18] Such a respite for as long as several weeks has sometimes been followed by successful amputation. The longest record was that of a woman who positively refused operation for six weeks and then died of coronary thrombosis, but usually a modified necrosis and intoxication supervene somewhat earlier in spite of the continuous packing in ice or bare ice bags. There has not been an opportunity to try refrigeration in the most favorable early stage.[19] As soon as complete blocking of a major limb artery is established, there can be no doubt of the harmfulness of heat and the benefit of cold. A very small proportion of such cases actually come to operation within the ideal period. It is a simple matter to have such a limb surrounded with ice, even on telephoned instructions. Whenever feasible, a tight tourniquet should be added, well above the arterial obstruction. The cold acts to control pain, preserve tissues and blood vessels and prevent further thrombosis and adhesion of thrombi. The tourniquet intensifies these effects, stops inadequate and injurious collateral circulation, halts the dangerous proximal extension of the thrombus and prepares for operation without other anesthesia. In this way the favorable period for embolectomy may conceivably be extended to a day or two and the results improved. Since postoperative warming in the hope of vasodilatation conduces to both thrombosis and necrosis, not always controllable by heparin, any warming should be kept proximal to the embolic region, and the distal part should be cooled moderately for a day or two.

This proposed use for fresh embolism is closely paralleled by the experiences with trauma, often including thrombosis. The usual purpose is the immediate control of pain and shock and the prevention of infection and necrosis for a long enough time to permit of other needed treatments and recovery. The first outstanding example was McElvenny's[20] case of a man moribund after amputation of both legs by a railway train, who by packing of the stumps in ice was enabled to respond to restorative measures and undergo successful operation after fifty-eight hours, the mangled tissues remaining perfectly fresh. Bowers[21] described arrest of gangrene in traumatic thrombosis cases in soldiers. The highest severity is represented in Mock's[22] cases of fractured pelvis with thrombosis of the iliac or femoral arteries, gangrene being prevented by refrigerating the legs for two or two and one-half weeks. In 1 case with complications of cerebral concussion, severe chest injury, ruptured urethra, infected large hematoma of the buttocks, pneumonia and empyema with rupture into a bronchus requiring emergency tracheotomy and subsequent rib resection, the recovery may be called unprecedented and there can be no question of the conclusion that an earlier thigh amputation would have been fatal. The longest record of preservation is the case of Ottaway and Foote[23] of a seaman on a destroyer, whose femoral artery and vein were severed by a shell fragment 6 cm. below Poupart's ligament and who was kept in good condition by refrigeration of the leg until amputation could be performed one month later. In all these reports it is made clear that amputation was successful far within the area of refrigeration, and a longer stump was saved than would have been possible in an emergency operation. The most important therapeutic principle established, however, is that with dangerous shock present or impending there should be no amputation, débridement or other limb operation that will add to the shock, since postponement is made safe by refrigeration.

The conservative value of refrigeration is shown in observations by I. W. Nachlas[24] of Baltimore, such as the following: A blast accident inflicted serious abdominal injuries, tore off one hand and mangled the other. Because of the severe degree of shock and the traumatism to the abdominal contents, immediate amputations might have been fatal. The stumps were packed in ice for two and one-half weeks before the general condition warranted reconstructive surgery. Then the amputation of one wrist was completed and the numerous fractures and lacerations of the other hand were repaired, the tissues appearing fresh and sound, with the result that the man can go through life with one hand nearly normal in function instead of "the horror of no prehensile limb."

Amputated parts can be preserved in the manner that has long been known for tissues in an ice box. An example of minor use in common daily practice was seen by one of us (L. W. C.) in a case of accidental amputation of the terminal phalanx of a man's thumb, the severed part hanging only by a shred of skin. Distance prevented surgical care for four hours, but meanwhile on telephoned instructions the hand was kept in iced saline solution. Suturing then was followed by healing. The most extreme illustration is the experimental amputation of dogs' legs by Blakemore and his co-workers,[25] the preservation of the legs in a refrigerator for twenty-four hours and their final surgical restoration in position and function. All the reports in the several preceding paragraphs furnish a sufficient answer to the occasionally expressed fear that tissues may be damaged by refrigeration for brief periods, with or without circulation. The exquisitely perfect preservation demonstrated by the Blakemore group, who were unacquainted with Allen's original preservation experiments, furnishes the most complete confirmation of these experiments and disproof of the injurious effect which has been deduced from Brooks and Duncan's experiments.[26]

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[16] McElvenny, R. T.: Arch. Phys. Therapy **25**: 599-602, 1944.

[17] Ferguson, L. K.: U. S. Nav. M. Bull. **43**: 697-706, 1944.

[18] Crossman, L. W., and Hurley, V.: J. Internat. Coll. Surg. **5**: 171-173, 1942.

[19] Allen, F. M.: J. Internat. Coll. Surg. **7**: 423-434, 1944. Footnote 5.

[20] McElvenny, R. T.: Surg., Gynec. & Obst. **73**: 263-264, 1941.

[21] Bowers, W. F.: Mil. Surgeon **93**: 289-294, 1943.

[22] Mock, H. E., and Mock, H. E., Jr.: Refrigeration Anesthesia in Amputations, J. A. M. A. **123**: 13-17 (Sept. 4) 1943. Mock, H. E., and Tannehill, E. H.: Surg., Gynec. & Obst. **78**: 429-433, 1944.

[23] Ottaway, J. P., and Foote, J. F.: U. S. Nav. M. Bull. **43**: 1041-1043, 1944.

[24] Nachlas, I. W.: Personal communication to the authors.

The so-called crush injury has received most study in England, where refrigeration has become part of the routine treatment. A tourniquet should be used only if operation is contemplated. In addition to ordinary shock, the existence of a special toxin in such cases is recognized. Cold (with or without pressure) can assist in reducing pain and edema, preserving endangered tissues and restraining infection, besides serving as a shockless operative anesthetic when necessary.

The vasoconstrictor influence of cold is sometimes feared in connection with the occasional arterial spasm in these and other forms of trauma. Nerve blocking with procaine does not always release the supposed reflex. Since refrigeration anesthetizes both nerves and protoplasm, it should theoretically release arterial spasm even when procaine fails.[27] Evidence is the noticeably full blood flow in stumps after ordinary amputations under refrigeration.

The fact that the necrosis following severe freezing is secondary to thrombosis rather than a direct killing effect of cold is the basis of a new treatment [28] in which heparin administration for three or four days brings about healing instead of sloughing. It may be necessary to thaw frozen parts to only a few degrees above freezing in order to prevent both thrombosis and necrosis in the interval before heparin can be obtained. In other respects the use of prolonged moderate cooling remains as part of the standard treatment for the neurovascular sequels of both frostbite and immersion foot.[5]

The unique simultaneous inhibition of pain, shock, exudation, infection, necrosis and intoxication recommends refrigeration as an ideal treatment for burns,[29] which can also be combined with other treatments as desired. Plunging into cold water or applying ice not only gives the quickest emergency relief of pain and inflammation but also reacts most favorably on the later course. The notable case of Kross [30] illustrates two features: First, an existing infection and intoxication can be controlled by radical refrigeration in the same rapid manner as in gangrene, far superior to any possibilities of drugs. Without cleansing or débridement, the burned area is covered with a single layer of petrolatum gauze and then with ice, ice bags or apparatus. Second, the temperature after the first few days of crisis is gradually raised as high as possible without bringing return of symptoms, which in Kross's case signified skin temperatures around 60 F. for the greater part of eleven weeks. Duplication of these results requires mastery of the technic, which is rather difficult with ice but simple with the thermostatically regulated apparatus. The method is then labor saving by eliminating careful asepsis, and it is believed to offer the best control of shock and postshock intoxication and infection, the best comfort and nutrition without opiates and maximum ultimate saving of tissue.

The effective relief of sprains by superficial chilling with ethyl chloride [31] can presumably be equaled by ordinary refrigeration, with the advantage of deeper penetration if desired. Anesthesia by refrigeration without a tourniquet, preferred by some surgeons [32] for gangrene amputations, can serve for plastic and other superficial operations in nonsclerotic cases. Thus Mock [33] uses it for taking skin grafts, and Webster [34] preserves the grafts for days or weeks with cold. If there is objection to prolonged tourniquet application for stopping hemorrhage or for operative purposes, releasing the tourniquet at intervals during refrigeration still permits of perfect anesthesia, as observed by Gratz in orthopedic operations.[35] Evidence in favor of ice application as part of the routine treatment of snake bite and of all envenomed bites and stings [27] is the protracted absorption of penicillin from chilled areas [36] and the protection of rabbits from lethal quantities of mustard gas.[37] Further important uses of refrigeration await only opportunities for research, which has not been encouraged by authorities in this country.

It is obvious that the uses described have wide applications in military surgery,[38] and lives and limbs could have been saved if instructions and equipment had been provided earlier. The arbitrary dictum that refrigeration is not feasible near the fighting fronts has been answered by the actual use even with improvised apparatus. The necessity is greatest in the tropics, because of the harmful influence of heat on shock and wounds, and forthcoming publications are expected to demonstrate the benefits derived from the method in the recent Pacific campaigns. This paper is written largely with a view to wider military information and adoption.

CONCLUSIONS

Experimentation during the past six years has revolutionized the treatment of shock by substituting temperature reduction for the previous practice of warming, and replacing the former colloid or plasma concept with fluid therapy chiefly in the form of large volumes of salt solution.

Many forms of trauma can be benefited by the unique power of cold to control simultaneously pain.

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[25] Blakemore, A. H.; Lord, J. W., Jr., and Stefko, P. L.: Ann. Surg. **117**: 481-497, 1943. Blakemore, A. H., and Lord, J. W., Jr.: Nonsuture Method of Blood Vessel Anastomosis, J. A. M. A. **127**: 685-691 (March 24); 748-753 (March 31) 1945.

[26] Allen, F. M.: Arch. Phys. Med. **26**: 92-98, 1945; footnote 35.

[27] Allen, F. M.: Am. J. Surg. **68**: 170-184, 1945.

[28] Lange, K., and Boyd, L. J.: Paper read at meeting of New York Academy of Medicine, May 16, 1945. Loewe, L.; Lange, K., and Rosenblatt, P.: Paper read at *meeting* of New York Academy of Medicine, May 16, 1945.

[29] Allen, F. M.: Canad. M. A. J. **51**: 220-226, 1944; footnote 27.

[30] Kross, I.: Low Temperature Therapy for Preservation of Limbs, J. A. M. A. **128**: 19-20 (May 5) 1945. Safford, F. K., and Nathanson, M. B.: Clinical Observations on Tissue Temperatures, Arch. Surg. **49**: 12-22 (July) 1944. Crossman, L. W., and Allen, F. M.: S. Clin. North America **25**: 361-370 (April) 1945.

[31] Bingham, R.: Mil. Surgeon **96**: 170-174, 1945.

[32] Cayford, E. H., and Pretty, H. G.: Ann. Surg. **121**: 157-163, 1945.

[33] Mock, H. E., Jr.: *Refrigeration Anesthesia in Skin Grafting,* J. A. M. A. **122**: 597-598 (June 26) 1943.

[34] Webster, J. P.: Ann. Surg. **120**: 431-449, 1944.

[35] Allen, F. M.: Anesth. & Analg. **24**: 51-65, 1945.

[36] Trumper, M., and Hutter, A. M.: Science **100**: 432-434, 1944.

[37] Yudin, S. S.: Am. Rev. Soviet Med. **2**: 4-13, 1944.

[38] Calver, G. W.: U. S. Nav. M. Bull. **42**: 358-380, 1944.

shock, exudation, infection, necrosis and formation and absorption of toxins. Specially important applications are to the *treatment of burns and military surgery* in general.

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ABSTRACT OF DISCUSSION

Dr. Temple Fay, Philadelphia: Drs. Crossman and Allen have done splendid work in the development of the shock prevention method of amputation surgery by means of refrigeration. This is but one aspect of the new field that awaits exploration. When one realizes that a human being can now be maintained for days at a body temperature 20 degrees F. below the normal level, the magnitude of this new field and its possibilities becomes apparent. A new physiology of tissue response awaits adequate investigation. Contrary to expectations, generalized refrigeration was not complicated by pneumonia in our series, in which low body temperatures were maintained for twenty-four hours or longer. Pneumonia and cardiac failure are two dangers to be properly evaluated. I have been impressed, however, with 2 instances in which bronchopneumonia appeared promptly when patients were subjected to a short period of inadequate refrigeration lasting two to four hours without reduction of general body temperature below 97 F. Only the devitalizing effects of ordinary overexposure is produced by such partial procedures. General refrigeration of body temperature should be done quickly and efficiently, reducing general temperature until 94 to 92 F. is reached, after which the patient can, if necessary, be maintained for five to seven days without further serious difficulty and little danger. The blood pressure, pulse and respiration must be observed and a close watch on temperature is required, as patients may slide down to lower levels quickly and without warning; 75 F. rectal is the lowest temperature I have noted in the human being compatible with recovery to normal temperature levels again. As body temperature is reduced to subnormal levels, more oxygen is held in solution in the blood, body tissue fluids and the cells themselves. Cellular metabolism is reduced by cold, and oxygen need is thus further curtailed. Satisfactory clinical improvement usually follows. A portion of the mechanism of shock is due to anoxia. Increased permeability of the capillaries to fluid may be due to lack of oxygen. Fluid lost to circulation gives rise to rapid pulse, low pulse pressure and symptoms of so-called shock that require prompt restoration of blood volume. The vasospastic drugs (posterior pituitary, epinephrine, ephedrine, ergot) are more effectual when the oxygen content of the blood is adequate and the temperature of the body is not permitted to become elevated. I have found that free administration of oxygen or an oxygen tent, if possible, is most desirable during the early period of treatment. Reduction of the entire body temperature by methods of refrigeration favors vasoconstriction, has sedational value and lowers respiratory and cardiac rates.

Dr. Harry E. Mock, Chicago: In approximately fifty major amputations under refrigeration that I performed or were done by others at my instigation, not a single case of shock has been recorded. Recently, both lower legs were amputated just below the knees of a man aged 22 because of congenital deformities. The patient continued to talk and even laugh as first one leg and then the other was removed under refrigeration anesthesia. Blood pressure readings varied 5 points throughout the operations. Neither blood transfusions nor stimulants were used postoperatively. Under any other anesthesia the fear of shock would have ruled out the removal of the two legs at one time. I welcome this opportunity to express my deepest appreciation to Fred Allen and his co-workers for teaching me to use refrigeration.

Dr. Lyman Weeks Crossman, New York: Dr. Fay has unfortunately not received the necessary aid for developing his pioneer discovery of "artificial hibernation" of mammals and man. In its practical application to this large subject of shock, the optimal rectal temperatures may possibly differ in man and animals and should be further established clinically by experts such as Fay. Until then, moderate temperature reductions appear most conservative for clinicians in general, but the essential point is that they must be brought about by Fay's method, which reduces metabolism with avoidance of discomfort and shivering, which cause increased metabolism and exhaustion. In local refrigeration we had the inestimable advantage of rapid confirmations and developments by numerous writers, and the most dramatic benefits in otherwise hopeless cases were shown in Mock's reports. In contrast to the rapid adoption by independent surgeons was the slowness of recognition of both refrigeration and saline therapy by the "organized" research authorities, to which rather than to the armed services themselves the delayed military use of these methods must be attributed. Great numbers of lives and limbs were unquestionably sacrificed by the official adherence to warming methods and pure plasma infusions, in defiance of contrary proofs published from 1937 to 1939; and the partial reforms introduced very late in the war were due strictly to the initiative of individual medical officers. These clear facts are pertinent to the current propagandistic claims that centralized control of medical research and practice will hasten the making and adoption of discoveries.

Dr. Frederick M. Allen, New York: Dr. Crossman will express the appreciation of both of us for the aid and kindness received from Dr. Fay and Dr. Mock. I wish to add only a brief reference to two developments which have come into prominence since this paper was written. While reports continue to be published showing the treatment of wounded soldiers with plasma, scientific evidence accumulates against plasma except as an inferior blood substitute and in favor of whole blood for hemorrhage and whole blood or preferably defibrinated blood (or saline suspension of red cells) for corpuscle deficits in shock. Saline therapy is advanced by various innovations, such as the replacement of isotonic solution of sodium chloride or other isotonic solutions with hypotonic solutions (e. g. 0.48 per cent sodium chloride or 0.38 per cent sodium chloride with 0.11 per cent sodium bicarbonate), for more normal bodily hydration without excessive salt retention. The curative values in shock, with its specific tissue demand for sodium, seem to be not yet finally established in comparison with various more concentrated mixtures (Moyer, C. A., and others: *Ann. Surg.* **120**:367 [Sept.] 1944. Coller, F. A., and others, *ibid.* **122**:663 [Oct.] 1945. Abbott, W. E., and others, *ibid.*, p. 678). Because of the probability that the liver plays a vital role in shock and the character of its blood supply makes it specially vulnerable to circulatory failure and anoxia, it may be hoped that the demonstrated benefits of arterial blood from a normal dog cross transfused into the splenic vein of a shocked dog may represent one of the most brilliant contributions to the theoretical understanding of shock (Fine, Jacob; Frank, H. A., and Seligman, A. M., *ibid.*, p. 652).

Pathology of the Spinal Cord as a Result of Trauma.—Injuries of the spinal cord present a slightly different pathologic picture than those of the brain. As is well known, the brain is enclosed in a rigid and practically unyielding skull, whereas the spinal cord, owing to a greater amount of free space between itself and the vertebral column, is usually allowed more mobility than the brain. The injuries of the spinal cord may result from fractures and dislocations, direct or indirect blows to the vertebral column such as falls, stabs, gunshot wounds, bomb and shell explosions, violent muscular strains and sudden changes in atmospheric pressure as in caisson disease. The pathologic changes in the cord depend on the type, extent and mechanism of the injury to the vertebral column, the spinal cord, its membranes and roots. The essential pathologic picture may be that of concussion, contusion or compression, each alone or in combination. In either type of injury, more so, however, in contusions, there may also occur lacerations, hematorachis and hematomy myelia.—Davison, Charles: Pathology of the Spinal Cord as a Result of Trauma, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

THE TREATMENT OF CIRRHOSIS OF THE LIVER WITH CHOLINE AND CYSTINE

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The treatment of cirrhosis of the liver was largely symptomatic until the past few years, when experimental studies on the etiology of cirrhosis offered the first intelligent approach to the treatment of this disease. The latest developments in the experimental studies indicate that nutritional factors are important in causing hepatic injury and that there may be prevention of this pathologic process by the proper change in the composition of the experimental diet.

In the experimental studies[1] by the various groups of investigators there is complete agreement that an inadequate amount of casein in the diet is the determining factor which causes hepatic injury consisting of fatty infiltration and degeneration, necrosis and cirrhosis. This effect of casein is explained on the basis of a lipotropic action.[2] It is generally believed[2] that this is in direct proportion to its content of methionine, which has been found to prevent experimental dietary hepatic injury when given in adequate amounts.

In addition to methionine there are other substances, choline and cystine, which are concerned in the problem of experimental hepatic injury. There is good evidence[3] that cystine administered in sufficient amounts may aggravate or cause hepatic injury, whereas choline[1] protects the liver from injury, especially from fibrosis, but has no effect on necrosis. There is some difference of opinion as to the mechanism of this action. György and Goldblatt[4] found that choline was more effective when administered with cystine, and they pointed out that in the experimental studies in which choline alone prevents hepatic injury the diets contain a certain amount of cystine.

In view of the effectual prevention of experimental hepatic injury by the combined administration of choline and cystine, the present clinical study was undertaken for the purpose of evaluating the importance of choline and cystine in the treatment of cirrhosis of the liver.

In this study only patients with cirrhosis of the liver who had ascites were selected. A group of 20 patients received from 1.5 to 3 Gm. of choline and the same amount of cystine daily divided into three doses for periods of one to five months. They were given a high protein and low fat diet which consisted of approximately 110 Gm. of protein (derived from meat, vegetables and dairy products), 50 to 70 Gm. of fat and 250 Gm. of carbohydrates supplemented with 30 to 45 Gm. of brewers' yeast daily.

Because of the manner in which these patients responded to the treatment they have been divided into two groups, one consisting of 12 patients in whom the livers were not enlarged and a second group of 8 patients who had large livers. The clinical determination of the size of the liver is subject to a certain amount of error. However, in this study, in which only the patients with large palpable livers were classified as having large livers and all of the others were considered to have livers which were not enlarged, the error is negligible.

A control group of 15 patients with large liver and ascites who had received the same diet and medication except for the choline and cystine were included in this study. The reason for selecting patients with large livers for comparison was the fact that only the patients with large livers in the treated group showed any evidence of improvement from treatment with choline and cystine.

The three groups of patients are much alike in every respect, as shown in table 1. They are in the same age group. The duration of the disease before treatment was much the same. The incidence of alcoholism was high in all of the groups, ranging from 83 to 87 per cent. Arsenic appeared to be the etiologic factor in 1 patient of the treated group who had taken solution of potassium arsenite intermittently for a long time. Jaundice was present in half of the treated groups and in 6 of the 15 in the control group. The patients of all three groups had advanced liver failure, evidenced by clinical signs and by the low serum albumin concentration.

As already mentioned, there was observed early in the course of the study a striking difference among the patients in the manner in which they responded to the choline and cystine. It was discovered that patients with large livers showed signs of improvement, while patients who had livers which were not enlarged exhibited no evidence that the course of the disease had been changed. The first 2 patients who were treated happened to have livers which were not enlarged. They received 1.5 Gm. of choline and 1.5 Gm. of cystine daily. One patient, who had the medication for fifty days, died on the fifty-ninth hospital day. An autopsy revealed a cirrhotic liver which weighed 1,060 Gm. The second patient was treated for sixty days and died on the sixty-eighth hospital day. It was then decided to increase the dose to 2 Gm. This dose was given to 14 patients, 8 of whom had large livers. Seven of the 8 showed evidence of clinical improvement. One died on the thirty-eighth hospital day after receiving choline and cystine for twenty-six days. An autopsy showed that the patient had cirrhosis of the liver and acute nephrosis. None of the 6 patients with livers which were not enlarged lived more than seven months after their first admission to the hospital. One patient died

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Wyeth Incorporated, Philadelphia, supplied the choline and the cystine used in this study.

Drs. Harry Goldblatt, Paul György and Richard M. Johnson gave their interest and advice

Paper published under the auspices of the Section on Gastro-Enterology and Proctology.

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Dr. Helena Hoelscher, the medical resident staff of Cleveland City Hospital and J. Wade Price, assistant professor of pathologic chemistry, Western Reser[illegible] School of Medicine, and his staff gave their interest [illegible] tudy.

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[3] Earle, D. P., Jr, and Victor, Joseph: Cirrhosis of the Liver Caused by Excessive Dietary Cystine, J. Exper. Med. 73:161 (Feb) 1941, and articles referred to in footnote 1.

[4] György, Paul, and Goldblatt, Harry: Experimental Production of Dietary Liver Injury (Necrosis, Cirrhosis) in Rats, Proc. Soc Exper. Biol. & Med. 46:492 (March) 1941; Observations on the Conditions of Dietary Hepatic Injury (Necrosis, Cirrhosis) in Rats, J. Exper. Med. 75:355 (April) 1942.

at the end of three weeks of a ruptured esophageal varix, and 5 died of liver insufficiency. Four died within a period of four months, and 1 lived seven months. An additional group of 4 patients with livers which were not palpable was given a trial of treatment with a larger dose, 3 Gm. daily. One patient received this amount for five months and another for four months, without any apparent effect. One of these patients lived for one and one-half years, and the others died within a period of six months. Four necropsies were done in this group of patients. The livers weighed from 900 to 1,650 Gm. and the microscopic examinations were characteristic of Laënnec's cirrhosis except in 1 case, in which the anatomic diagnosis was postnecrotic cirrhosis.

In the group of patients who showed signs of clinical improvement, the first indication of response to the choline and cystine was a diuresis which began about two weeks after the medication was started. At first the diuretic effect was very slight, but it gradually increased until at the end of a month a negative water balance existed. At the end of two months ascites was not demonstrable and the livers were much smaller. The serum albumin showed a definite rise in most of these patients after a month of treatment from an average of 2.47 Gm. per hundred cubic centimeters to 3.08 Gm. per hundred cubic centimeters. At the end of three months the serum albumin ranged from 3.4 Gm. per hundred cubic centimeters to 4 Gm. per hundred cubic centimeters in all of the patients except 1, in whom the level never exceeded 2.86 Gm. per hundred cubic centimeters during a five month period of treatment. However, his ascites disappeared and the liver became smaller. The cephalin-cholesterol flocculation test became negative in only 2 patients, 1 at the end of a month and another after a period of a year.

Although none of the 7 patients showed any clinical signs of a return of liver failure, 1 of them died of a ruptured esophageal varix at the end of one and one-half years. A second patient died of bronchopneumonia after a similar lapse of time. The remaining 5 patients were enjoying good health at the time this report was completed.

The following 2 reports will serve to show how the clinical course of cirrhosis of the liver was altered by choline and cystine in the patients with large livers:

R. C., a white man aged 44, a bartender, entered the hospital because of swelling of his abdomen and feet for a period of two months. Six months prior to his admission he had experienced some nausea and indigestion at times. Two weeks before admission he had lost his appetite and had lost weight. He had drunk 1 to 2 pints of whisky a day for a period of several years. The principal physical findings were slight icterus, ascites, large liver and spleen, edema of the legs and feet, red blood cells 4.9 million, hemoglobin 90 per cent, white blood cells 12,000, cephalin-cholesterol flocculation test 3 plus, icterus index 20, serum albumin 2.4 Gm. per hundred cubic centimeters and globulin 3.2 Gm. per hundred cubic centimeters.

For three months the patient was given a high protein and low fat diet. The diet consisted of 110 to 120 Gm. of protein, 50 to 70 Gm. of fat and 250 Gm. of carbohydrates supplemented with 45 Gm. of brewers' yeast daily. How much he ate of the prescribed diet is not known, since no weigh back was done. It was estimated that he consumed less than half. During this time he had four abdominal taps and received mercurial diuretics. He showed no clinical evidence of improvement at the end of three months, following which he was given 2 Gm. of choline and 2 Gm. of cystine daily. Shortly after the choline and cystine were started there was a definite improvement in appetite. At the end of two weeks there was an increase in the amount of urine, and it gradually increased until he had a negative water balance at the end of three weeks. One month after medication was started the serum albumin was 2.8 Gm. per hundred cubic centimeters and globulin 3.5 Gm. per hundred cubic centimeters; at the end of three months the serum albumin was 3.9 Gm. per hundred cubic centimeters and globulin 3 Gm. per hundred cubic centimeters, at which time the liver was palpable just below the costal margin and there was no evidence of ascites. His serum albumin was 3.8 Gm. per hundred cubic centimeters and globulin 2.6 Gm. per hundred cubic centimeters at the end of a year. He has continued to be in good health after a period of two years.

This case represents an instance in which choline and cystine appeared to supply the factors necessary to reverse the process in the liver. They could not be supplied by diet alone because the patient was not able to tolerate large amounts of food. In instances of this kind the choline and cystine are comparable to vitamin concentrates, which are often necessary in addition to diet in the treatment of certain deficiency diseases.

Table 1.—*A Comparison of the Clinical Data of the Treated Groups with the Control Group*

	Patients Treated with Choline and Cystine		
	Livers Not Enlarged	Livers Enlarged	Control Group
Number of patients	12	8	15
Average age	49	48	50
Sex: Male	10	8	12
Female	2	0	3
Duration of disease before treatment.	2 months to 5 years	6 weeks to to 2 years	4 weeks to 2 years
Alcoholism	10	7	13
Jaundice	6	4	6
Average serum albumin	2.56 grams per 100 cc.	2.47 grams per 100 cc.	2.74 grams per 100 cc.
Average serum globulin	3.9 grams per 100 cc.	3.47 grams per 100 cc.	4.01 grams per 100 cc.
Cephalin-cholesterol flocculation test			
Positive	10	8	
Negative	2	0	

F. K., a man aged 51, entered the hospital because of abdominal swelling of three months' duration. He had been a heavy drinker of alcoholic beverages all his life. For about a year he experienced some nausea and poor appetite and had lost considerable weight. Three months before admission he noticed some swelling of his abdomen and edema of his feet. The swelling gradually increased until he entered the hospital. The chief findings were evidence of weight loss, slight icterus, edema of the legs and lower part of the back, ascites, large liver, red blood cells 3.82 million, hemoglobin 70 per cent, white blood cells 6,350, serum albumin 1.9 Gm. per hundred cubic centimeters, globulin 3.8 Gm. per hundred cubic centimeters and cephalin-cholesterol flocculation test 4 plus.

He was given a high protein, low fat diet and 45 Gm. of brewers' yeast daily. After three and one-half months of this regimen no change in his clinical condition was seen. It was necessary to do abdominal taps every week or ten days, and serum albumin remained at the same level. Choline and cystine 2 Gm. daily were added to this treatment. For the first month but little change was noticed. At the end of one month the serum albumin was 2.1 Gm. per hundred cubic centimeters and globulin 4 Gm. per hundred cubic centimeters. In the next two weeks the patient began to have diuresis, and at the end of two months no ascites was demonstrable. His serum albumin at this time was 3.5 Gm. per hundred cubic centimeters and globulin 4.9 Gm. per hundred cubic centimeters. He appeared to be in good health for a period of one and one-half years, when he suddenly died of hemorrhage from a ruptured esophageal varix.

This case serves to illustrate that fibrosis cannot be altered by treatment. This patient, after making a good recovery from liver decompensation, died of hemorrhage from a ruptured esophageal varix the result of portal hypertension probably due to the fibrotic changes still present in the liver.

In order to estimate the effectiveness of the treatment with choline and cystine, a comparison was made with the control group of 15 patients previously mentioned. From the standpoint of survival, the difference between the patients with large livers treated with choline and cystine and the control group is quite striking. One patient of the treated group was dead at the end of one year, compared to 6 at the end of six months and 9 at the end of a year in the control group. Only 6 patients in the treated group have been observed as long as two years, at the end of which time 3 had died, compared to 10 in the control group (table 2). The results of the treatment are disappointing when the patients with livers not enlarged are included. Fifty-five per cent were living at the end of six months. At the end of one year 40 per cent survived, and at the end of two years 16.6 per cent.

TABLE 2.—*A Comparison of the Survival of the Choline-Cystine Treated Patients with the Control Group of Patients with Cirrhosis Treated with a High Protein, Low Fat Diet*

	Number of Patients	Survival Period		
		6 Months	1 Year	2 Years
Patients with livers not enlarged	12	4	1	0
Patients with large livers *.......	8	7	7	3
Control group....................	15	9	6	5

* Two patients of this group have been followed only one year.

In the evaluation of any therapy for cirrhosis one must realize that spontaneous remissions sometimes occur, and there are stages of the disease at which the process is irreversible. There are no clinical signs or liver function tests which are of any help in detecting clinically when this stage has been reached. When these facts are taken into consideration it is quite apparent that it will be necessary to study large groups of patients in order to establish any definite conclusions as to the efficacy of a treatment.

In this investigation, in which only a small number of patients were studied, the possible merits of the combined administration of choline and cystine therapy for cirrhosis cannot be decided. However, the results which were obtained are sufficient to warrant further investigation of this form of treatment. In the group of patients with large livers the results are very encouraging when compared to the control group. Additional evidence for the efficacy of the treatment is that some of the patients improved with choline and cystine after they failed to respond to a high protein, low fat diet supplemented with yeast.

The difference noticed in the response to choline and cystine between the patients with large livers and those with livers not enlarged appears to be of considerable importance. It suggests that the size of the liver may give some indication whether the process can be reversed by treatment. It is generally agreed that, as the fibrosis increases, the liver becomes smaller and the possibility of obtaining a reversal of the process becomes less. On the other hand, the large cirrhotic liver in most instances contains more fat and less fibrosis. Fleming and Snell[5] found in their study that favorable results occurred in patients with large livers, and they expressed the opinion that the "cures" probably are to be expected among the patients who possess various degrees of fatty metamorphosis and degeneration without extensive periportal fibrosis. There seems to be general agreement that treatment is more effectual when there are fatty changes in the liver. However, other changes such as cloudy swelling and necrosis, which are characteristic microscopic findings in cirrhotic livers, may be altered by treatment.

Since the combined administration of choline and cystine was effective only in the patients with large livers where fatty changes were suspected, a lipotropic action of choline and cystine is the logical explanation for the results which were obtained. These results are what might be expected in view of the experimental studies[1] in which choline, the combination of choline and cystine, or methionine has been found to prevent the deposition of fat in the liver.

The only reference which can be found in medical literature as to the clinical use of choline and cystine in the treatment of human cirrhosis is that of Russakoff and Blumberg,[6] who report a personal communication from Gordon. He[7] observed striking improvement in 5 cases of alcoholic cirrhosis treated with a combination of choline and cystine. There are several clinical reports[8] in which choline in conjunction with a high protein, low fat diet and vitamin supplements appeared to exert a favorable influence in the treatment of cirrhosis.

The favorable results in the treatment of cirrhosis of the liver reported by Patek and Post[9] and by Fleming and Snell[5] with high protein diets and vitamin supplements must be attributed to certain factors in the proteins which arrest or reverse the process in the liver. On the basis of the present experimental studies choline, a combination of choline and cystine, and methionine are the only substances which are known to exert this action. There is a close analogy between cirrhosis of the liver and certain vitamin deficiency diseases in which diet alone may correct the condition when it can provide a sufficient amount of the deficient factors. However, when diet does not do this vitamin concentrates must be supplemented.

CONCLUSION

It is important to emphasize the limitations of the treatment of cirrhosis. Up to the present time there has been no treatment which has been found that alters fibrosis of the liver. Recovery of liver function therefore must depend on the arrest or reversibility of the other pathologic changes which are found in cirrhosis.

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[5] Fleming, R. G., and Snell, A. M.: Portal Cirrhosis with Ascites: An Analysis of 200 Cases, with Special Reference to Prognosis and Treatment, Am. J. Digest Dis. **9:** 115 (April) 1942.

[6] Russakoff, A. H., and Blumberg, Harold: Choline as an Adjuvant to the Dietary Therapy of Cirrhosis of the Liver, Ann. Int. Med. **20:** 848 (Nov.) 1944.

[7] Gordon, E. S., cited by Russakoff and Blumberg.[6]

[8] Broun, G. O., and Meuther, R. O.: Treatment of Hepatic Cirrhosis with Choline Chloride and Diet Low in Fat and Cholesterol, J. A. M. A. **118:** 1403 (April 18) 1942. Barker, W. H.: The Modern Treatment of Cirrhosis of the Liver, M. Clin. North America **29:** 273, 1945. Wade, L. J.: Recent Advances in the Therapy of Cirrhosis of the Liver, ibid. **29:** 479, 1945. Russakoff and Blumberg.[6]

[9] Patek, A. J., and Post, Joseph: Treatment of Cirrhosis of the Liver by a Nutritious Diet and Supplements Rich in Vitamin B Complex, J. Clin. Investigation **20:** 481 (Sept.) 1941.

SUMMARY

1. Twenty patients with cirrhosis of the liver who had ascites were treated with a high protein, low fat diet supplemented by yeast and a combination of choline and cystine.

2. Twelve of the 20 patients with livers which were not enlarged showed no response to the therapy, whereas 7 of the 8 patients with large livers made a good recovery from liver decompensation.

3. A comparison of the treated group of patients with large livers with a similar group of 15 patients who were treated with only a high protein, low fat diet supplemented with yeast indicated that the combination of choline and cystine had a favorable influence in the treatment of cirrhosis.

4. The striking difference in the response of patients with large livers compared to patients with livers not enlarged suggests that the combination of choline and cystine is effective where fatty changes in the livers are suspected.

ABSTRACT OF DISCUSSION

Dr. James H. Eddy Jr., Shreveport, La.: The importance of certain nutritional factors in the treatment of hepatitis appears to rest on good laboratory and clinical evidence. The sulfur containing amino acid methionine or cystine plus choline is apparently the essential factor. That either methionine or cystine plus choline has any advantage over the other is doubtful unless it is the simplicity of using one drug in place of two. My experience has been entirely with methionine, but results obtained with methionine could be expected to occur with cystine plus choline. My work has been neither as extensive nor as well controlled as Dr. Beams's has been, but the results seem to be roughly parallel. All of our late cases have been fatal in spite of treatment, although a definite if temporary improvement occurred in 1 case, in which a notable diuresis followed the administration of methionine; but death in coma took place within a few weeks. Of the 2 earlier cases only 1 is proved by microscopic study, but both are definite early cases of cirrhosis. Both of these patients had large livers and both have shown a good improvement, so that they have been able to return to their regular jobs, have become clear of jaundice and have good appetites. I believe that much more clinical work will be required to establish the place of these nutritional factors in the treatment of cirrhosis and that these patients must be followed for several years to determine how permanent this improvement will be. One thing seems certain, and that is that these patients must be treated early, as no medical management may be expected to relieve portal obstruction.

Dr. Nolan Kaltreider, Rochester, N. Y.: Dr. Beams points out that it is quite difficult to evaluate the effectiveness of any one particular therapeutic agent in human beings with cirrhosis of the liver. The course of the disease is very variable and there are many factors that are beyond the control of the investigator. Even though the reported group of cases of cirrhosis of the liver treated with a mixture of choline and cystine is quite small, such clinical observations do serve well as pilot experiments. Pooling the results of such series from various clinics will make it possible in the near future to have a large enough series to apply statistical methods in an effort to evaluate the results. This study suggests that choline-cystine supplements are much more effective in cases in which the livers are enlarged by fatty infiltration or degeneration and by necrosis than in the stage in which the livers are small, presumably contracted by fibrous tissue. If this result is substantiated, it should be an important point in the prognosis of the disease. It would be of interest to know the dietary intake of the control group, for from the 2 cases reported in detail in the paper it appears that an adequate caloric intake was not possible prior to the administration of the supplements. Patek obtained very encouraging results in a group of patients with cirrhosis who were placed on a high protein, carbohydrate and low fat diet supplemented by large quantities of yeast. But he points out that in order to obtain such improvement it is necessary for the patient to receive a high caloric intake daily. In a small series of cases treated with a high protein, carbohydrate, low fat diet and with supplements of choline-cystine mixture of methionine, improvement (disappearance of symptoms, return of the electrophoretic pattern to normal and normal liver function) was observed provided the patients took an adequate caloric intake and reduced their alcoholic consumption. Whether or not these patients would have improved with an adequate diet without the supplements I am not prepared to say. The disease in one of the patients with large liver has continued to progress despite fairly large doses of choline-cystine mixture and methionine over a period of one year. This patient did not take the diet prescribed and he continued to consume large amounts of alcohol. On the other hand, another patient with almost identical findings is now clinically well with a reversion of the albumin globulin ratio to normal, a normal electrophoretic pattern and a normal liver function. The second patient has taken a high caloric diet and supplements and has abstained from the use of alcohol. These experiences with supplements of yeast powder, choline-cystine mixture and/or methionine, in addition to a high caloric diet and abstinence from alcohol suggest a very favorable prognosis for persons suffering from cirrhosis of the liver, especially those in the early stages of the disease before the pathologic process becomes irreversible.

Dr. Charles L. Hoagland, New York: There are differences between the syndrome of chronic hepatic insufficiency accompanied by clinical signs of enlargement of the liver and the cirrhotic syndrome in which the liver is not palpable and therefore probably decreased in size. The prognosis is far better in the former type of cirrhosis, and it is in the group of patients who present signs of enlargement of the liver that by far the largest number of spontaneous remissions occur. It is in this group also that the best therapeutic results have been achieved with an adequate diet, rest, transfusions of blood, plasma and homologous albumin, and the administration of crude liver extract and vitamins. Incipient cirrhosis is characterized by fatty infiltration and enlargement of the liver. As the disease advances there is continued proliferation of connective tissue throughout the portal spaces of the liver, with eventual fusion and deformity of the hepatic lobules. In its final stages the disease process is associated with shrinkage in the size of the liver and a decrease in its total mass. Logically, therefore, the sooner rational treatment is begun in cirrhosis of the liver the greater are the chances that the course of the disease may be favorably influenced. If choline and cystine are truly helpful in the treatment of cirrhosis of the liver, but only in those cases which present signs of hepatic enlargement, success in the use of this type of therapy may well be due in a large measure to early initiation of treatment, including the prompt institution of adequate alimentation and good clinical care. If we are right in the supposition that chronic hepatic insufficiency is a multiple deficiency syndrome, it would be well to stress the use of adjuvant therapy of the most diverse type rather than to rely exclusively on one or more promising agents. Any measure which may be expected to relieve one or more of the metabolic defects arising in this complex syndrome should be included in the therapy of chronic hepatic insufficiency. Measures such as an adequate caloric intake, transfusion of blood, plasma and homologous serum albumin, and the administration of choline, the sulfur-amino acids, crude liver extract and the vitamins may be expected to contribute to some degree in raising the total metabolic efficiency of the liver and to play an important role in helping to check the processes at work in early cirrhosis of the liver, which, if uninfluenced, lead ultimately to a state of irreversible hepatic insufficiency and death.

Dr. Paul György, Philadelphia: The use of choline plus cystine, or of methionine, in the treatment of cirrhosis of the liver in man is based on results obtained in experimental animals in which hepatic injury (necrosis and cirrhosis) was produced by dietary means or after exposure to hepatotoxins. Methionine, or cystine plus choline, has a beneficial effect on both necrosis and cirrhosis, choline on cirrhosis, cystine in physiologic doses mainly on necrosis. These animal experiments were with few exceptions of prophylactic and not of therapeutic nature. It can be rightly questioned whether cirrhosis, with its massive fibrotic changes and destruction of normal architecture, will respond also therapeutically to dietary factors which determine its prevention. On the other hand, it should be borne in mind that cirrhosis is more than fibrosis and is usually associated with definite impairment of liver function. Failure to inactivate estrone is one of the manifestations of experimental dietary hepatic injury. It can be studied on living castrated female rats with pellets of estrone implanted in their spleen. Estrus appearing in such animals when kept for varying lengths of time on a cirrhosis producing ration can be suppressed by adding methionine or methionine-containing protein to the diet. This therapeutic effect of methionine and protein can also be demonstrated histologically by comparing sections of the liver taken by biopsy from animals that have been kept for a period of about one hundred and fifty days on a cirrhosis producing basal diet, with sections taken at autopsy of the same animals killed one hundred and fifty days after treatment. In addition to diet, endocrine factors appear to play an important role in experimental hepatic injury. It has been recently shown that estrone exerts a definite, although limited, protective effect on the liver on female rats fed a cirrhosis producing diet. Testosterone or methyltestosterone were without similar beneficial influence. In male rats exposed to carbon tetrachloride the survival time was shorter and parenchymatous changes, especially in the kidneys as part of the hepatorenal syndrome, were more evident than in identically treated female controls. Methionine has shown definite protective effect in both groups, relatively more pronounced in males. The protective effect of thiouracil in experimental hepatic injury might conceivably be regulated through the thyroid gland. It remains to be shown whether management of human cirrhosis of the liver will improve by combination of dietary and endocrine therapy.

Dr. A. J. Beams, Cleveland: I agree with Dr. Eddy that choline and cystine have no advantage over methionine in the treatment of cirrhosis. In the past year I have employed methionine in the treatment of a group of patients with cirrhosis and hepatitis, and the results are similar to those obtained with choline and cystine. Dr. Kaltreider's inquiry as to the dietary intake of the patients in the control group cannot be answered, since the food they failed to eat was not estimated. They were given a high protein (approximately 110 Gm.) low fat and high carbohydrate diet (2,000 to 2,500 calories), which was the same diet employed in the group treated with choline and cystine. Since many of the patients who have cirrhosis with ascites are too sick to take an adequate diet, the report of good results in the treatment of cirrhosis with diet alone is surprising. Since Dr. Hoagland agrees that the best therapeutic results are obtained in the group of patients with large livers and fatty infiltration, it is difficult to understand why he doubts that a lipotropic substance such as choline plus cystine would not be helpful in the treatment of cirrhosis. I agree that there are evidences for multiple metabolic deficiencies in chronic liver insufficiency, and every measure which may relieve the metabolic defects should be employed. However, in cirrhosis, just as in many of the other deficiency diseases, there is good evidence of one factor being the essential cause of the disease, and the other metabolic defects are the result of the disturbed metabolism. This is especially true in the liver, where many metabolic processes occur. It is quite true that additional experimental and clinical evidence is necessary before it can be established that choline plus cystine or methionine is the essential nutritional factor that is required in the successful treatment of cirrhosis of the liver.

REACTION FOLLOWING BRONCHOGRAPHY WITH IODIZED OIL

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Severe or fatal reactions are relatively rare following instillation of iodized oil into the tracheobronchial tree. Information is furnished[1] that the Army Institute of Pathology has on file the protocol of only 1 case that might possibly be a fatal lipiodol reaction after intrabronchial instillation, and that case is the one reported herein. It is estimated[2] that about 300 bronchograms, representing some 200 individual patients, are performed yearly in the Section on Roentgenology of the Mayo Clinic. Nevertheless, according to Good, "there has never been a fatal accident following bronchography in the memory of any one, including myself, who has worked in this field at the clinic." Patients at the Mayo Clinic are not tested for iodine sensitivity prior to lipiodol bronchography unless they give a history of sensitivity to iodine. Among those patients who are sensitive to iodine, about six mild reactions occur each year, but all have been controlled without fatality. White and Bayliss[3] could find only 8 cases of severe reactions, 3 of them fatal, reported in the literature to time of writing (1943), and to these 8 cases they added 1 nonfatal case of their own.

They state that "no similar case has previously occurred in Sydney (Australia) following lipiodol bronchography. One of our radiological colleagues has made 2,000 lipiodol examinations of the bronchial tree with no untoward results." Scadding[4] had 2 cases of severe reaction to lipiodol (included in summary of literature by White and Bayliss), 1 of them fatal, and he states that "over 2,900 lipiodol examinations have been performed at this hospital without a previous serious accident from iodine sensitivity." Criep and Hampsey[5] circulated a questionnaire on the use of intratracheal iodized oil in bronchial asthma. Sixty-four of the physicians who replied had used iodized oil in examining 1,205 asthmatic patients and did not report a fatality. Ten other cases of severe reaction following lipiodol instillation can be found in the literature,[6] but no figures are given on the total number of uneventful lipiodol instillations represented by the ten severe reactions, five of which were fatal, five nonfatal. One of the patients who died[7] was a 13 year old girl, known to be asthmatic, who became cyanotic with weak pulse and died twenty hours after instillation of lipiodol. The autopsy findings were those considered typical of bronchial asthma. Another patient[8] died a few minutes after bronchoscopy with instillation of lipiodol, but since no details are given it is not possible to rule out some type of death other than iodized oil reaction, e. g. fatal reaction to local anesthetic. The other three

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1. Personal communications to the author from Col. J. E., Ash, M. C., director, Army Institute of Pathology, Washington 25, D. C.
2. Personal communication to the author from C. Allen Good, Section of Roentgenology, the Mayo Clinic.
3. White, Bruce, and Bayliss, C. G.: Acute Iodism Following Lipiodol Bronchography, M. J. Australia **2**: 421 (Nov. 20) 1943.
4. Scadding, J. G.: Acute Iodism Following Lipiodol Bronchography, Brit. M. J. **2**: 1147 (Dec. 22) 1934.
5. Criep, L. H., and Hampsey, J. W.: Therapeutic Value of Iodized Oil in Bronchial Asthma, J. Allergy **9**: 23 (Nov.) 1937.
6. Macdonald.[7] Hansen.[8] Plehn.[9] Amberson and Riggins.[11] Jacobaeus, Selander and Westermark.[10] Pinchin and Morlock.[10]
7. Macdonald, I. G.: The Local and Constitutional Pathology of Bronchial Asthma, Ann. Int. Med. **6**: 253 (Aug.) 1932.
8. Hansen, Olga S.: Death from Asthma, Minnesota Med. **19**: 445 (July) 1936.

fatalities[9] are reported so briefly that one cannot form an adequate idea of the cause of death; and it cannot be certified that these deaths were reactions to iodized oil per se. The reactions in the 5 nonfatal cases[10] were diagnosed acute massive collapse of the lungs, but of course the actual pathologic condition can never be known. Amberson and Riggins[11] believe that the 4 cases of Jacobaeus, Selander and Westermark[10] were cases of pulmonary edema rather than atelectasis, but careful reading of the original report makes it appear that the cases actually fulfilled the clinical and x-ray criteria of pulmonary collapse and should be considered such.

It is significant, with regard to the factor of iodine sensitivity, that in the case reported by White and Bayliss[3] and in the nonfatal case reported by Scadding,[4] a previous instillation of iodized oil had been given without any reaction; also that no severe or fatal reactions to lipiodol have been observed at the Mayo Clinic to date, even in patients known to be sensitive to iodine.[2] Further, the patient of White and Bayliss gave a negative reaction to iodine when tested for sensitivity after the acute reaction had subsided, and Scadding's patient with a severe but nonfatal reaction had been taking iodide by mouth previous to the lipiodol injection but had not shown any symptoms of iodine sensitivity.

The types of reaction that may occur following use of iodized oil have not been found classified in the available literature. The reactions that are seen in the Mayo Clinic groups are classified as follows:[2]

1. Swelling of the parotid and submaxillary glands, beginning shortly after instillation of the oil and subsiding within twenty-four to forty-eight hours. This is the most common reaction, is seen three to four times a year, and occurs in patients without allergic history.
2. Asthma, occurring about once a year, always in persons who show other signs of allergy.
3. Urticaria, beginning almost immediately, not occurring over once a year and "probably on an allergic basis."
4. Skin eruption, papular or pustular, occurring ten to fourteen days after the instillation of the oil, similar to a drug eruption and not seeming to have an allergic basis.

Scadding[4] notes that he had had frequent mild reactions prior to the two severe ones, and these mild reactions were usually a transient coryza with lacrimation, and possibly mild urticarial or erythematous rashes, all passing off within a few days; while less frequently more severe rashes of an acute irritant and urticarial type occurred seven to ten days after injection; and headaches occurred rarely. All the cases reported in the literature primarily as reactions to lipiodol[12] have been classified as "acute iodism" and have been characterized by dermal lesions of a type described as hemorrhagic, bullous urticaria. The other reactions reported in the literature[6] either represent pulmonary reactions or are not described adequately to determine the exact type of reaction involved, and these cases are reported incidental to other subjects, such as various studies of asthma, diagnostic or pathologic, or studies of the use of iodized oil as a therapeutic agent in asthma.

The following case is reported because it is believed to be unique as a case of fatal pulmonary reaction following instillation of iodized oil into the tracheobronchial tree, and caused by reaction to the iodized oil.

REPORT OF CASE[13]

History and Course.—A white man aged 41 was admitted to the hospital with the chief complaint of gastroenteritis. He had had abdominal pain for three days prior to admission and became nauseated on the day of admission. The past history was negative except for a note of occasional cough of apparently nonspecific nature. No history was taken about asthma specifically. Physical examination on admission was entirely normal except for a temperature of 101.8 F., pulse rate 104, respiratory rate 24 and slight tenderness in the gallbladder region. Laboratory studies on admission showed normal urinalysis, red cells 4.4 million, white cells 7,750 with 72 per cent neutrophils, 28 per cent lymphocytes and blood Kahn reaction negative. The signs and symptoms of gastroenteritis cleared within twenty-four hours, and then physical examination showed a few rales in each base and in the left upper chest posteriorly. On account of these rales, x-ray examination of the chest was ordered and the sedimentation rate of the blood was determined. The sedimentation rate was 26 mm. per hour (Cutler method). The x-ray was reported as showing some increase in lung markings throughout both lung fields, more definite in the right base, which had a honeycomb appearance which was somewhat suggestive of a bronchiectasis. The patient was referred to the eye, ear, nose and throat clinic for a lipiodol injection for visualization of the right lower bronchial tree. At 8:15 a. m. the patient was given 1½ grains (0.1 Gm.) of seconal by mouth, and at 8:45 a. m. the larynx was anesthetized with topical application of 3.5 to 4 cc. of 10 per cent solution of cocaine. A rubber tube was inserted into the trachea; the patient was taken to the x-ray room on a cart and 10 cc. of lipiodol was injected into the base of each lung. The x-ray examination was completed, the patient stated that he felt well and he was returned on a litter to his ward at about 10 a. m. He complained of some vague difficulty in breathing when he was first returned to the ward but didn't seem greatly troubled by it. He asked for some coffee and drank about a cupful without any apparent distress or difficulty. About twenty minutes later he had a severe generalized convulsion. An intravenous dose of 7½ grains (0.5 Gm.) of sodium amytal was given within one minute of the time of onset of the convulsion because the possibility of a cocaine reaction was considered. A few minutes later the patient became extremely cyanotic and stopped breathing. Artificial respiration was given for about thirty minutes, and he was pronounced dead at 11:20, about ninety minutes after cocainization of the throat and about seventy-five minutes after instillation of the lipiodol.

Autopsy.—This was performed one and one-half hours after death. The body was well developed and nourished, still warm, with slight but definite rigor of the extremities and a diffuse dependent lividity of mild degree. General external examination was not remarkable. The peritoneum and peritoneal cavity were normal. When the thoracic cage was opened, the left lung was found collapsed, filling only about one third of the chest space. The surface of the right lung was covered with dense fibrous adhesions which bound it tightly to the chest wall everywhere except over the apex and the base. When these adhesions were broken, the right lung immediately collapsed to the size of the left lung. The left lung weighed 300 Gm., the right lung 400 Gm. Both lungs, when removed, were noncrepitant, and except for the apex and base of the right lung the cut surface had the appearance of atelectatic lungs. The tracheobronchial tree was completely filled with thick, extremely tenacious mucus. This material was found plugging even the smallest bronchioles at the base of the lungs. The tracheobronchial mucosa was pink and velvety in appearance. The pulmonary vessels were patent and were free of thrombi or emboli. There was no gross evidence of tuberculosis in either lung or in the tracheobronchial lymph nodes. The right ventricle of the heart was dilated and filled with black fluid blood; the left ventricle was contracted and empty. The coronary arteries were normal and patent. The spleen, liver, gallbladder, adrenal glands, venae cavae and pelvic veins, pancreas, kidneys and genitourinary tract, scalp, skull, brain and cord were examined and found to be grossly normal. The stomach was contracted and contained only a small amount of brown, semiliquid material with a coffee-like odor. No oil was seen in the stomach. The remainder of the gastrointestinal tract was entirely normal.

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[9] Plehn, G. J., in discussion on Anderson, William: The Treatment of Bronchial Asthma by Intratracheal Injections of Iodized Oil, New York State J. Med. **36:** 1151 (Aug. 15) 1936. Amberson and Riggins.[11]

[10] Jacobaeus, H. C.; Selander, G., and Westermark, N.: A Study of Acute Massive Atelectatic Collapse of the Lung, Acta med. Scandinav. **71:** 439, 1929. Pinchin, A. J. S., and Morlock, H. V.: Acute Massive Collapse of the Lung Following Lipiodol Injection, Brit. M. J. **1:** 930 (May 30) 1931.

[11] Amberson, J. B., and Riggins, H. M.: Lipiodol in Bronchography, Am. J. Roentgenol. **30:** 727 (Dec.) 1933.

[12] Goldstein, D. W.: Fatal Iododerma Following Injection of Iodized Oil for Pulmonary Diagnosis, J. A. M. A. **106:** 1659 (May 9) 1936. White and Bayliss.[3] Scadding.[4]

[13] Army Medical Museum accession 126310.

Postmortem Laboratory Studies.—Urinalysis gave normal results throughout.

Chemical examination of the blood from the right ventricle revealed 363.6 mg. of sugar and 16.6 mg. of urea nitrogen per hundred cubic centimeters. The corresponding figures for blood from the aorta were 322.6 mg. and 12.8 mg. per hundred cubic centimeters.

3. The spinal fluid was clear and colorless, with 4 lymphocytes. The Pandy test was slightly positive. The Kolmer reaction was negative in all dilutions, sugar 69.9 mg. and chlorides 672.7 mg. per hundred cubic centimeters.

A smear of the bronchial mucus revealed a few cells, chiefly neutrophils and lymphocytes, with 1 per cent or less eosinophils. No organisms were present in gram stained or acid fast stained slides.

Microscopic Examination.—The trachea and main bronchi showed an occasional eosinophil infiltrating the mucosa and a moderate number of eosinophils together with an increased number of small round cells infiltrating the submucosa. The mucous glands showed evidence of activity, but only rarely was an eosinophil seen present immediately adjacent to the mucous gland units. The appearance of the intrapulmonary air passages showed great diversity. The bronchi and largest bronchioles had thickened, infolded mucosa, and the lumens were stenosed and filled with mucus in which were a very few lymphocytes and neutrophils but no eosinophils. The basement membrane was thickened and hyalinized. There was no cellular infiltrate in the submucosa or walls of these larger air passages. The smaller and terminal bronchioles were dilated, and their epithelial lining was thinned and flattened and often eroded. Their dilated lumens were filled with mucus in which were many eosinophils, neutrophils and neutrophilic cell débris. The bronchiolar walls and the peribronchiolar tissues were heavily infiltrated by eosinophils, neutrophils and lymphocytes. The tissue eosinophilia in these areas was quite striking and seemed to be directly related to the severity of the dilatation of the lumen and cellular content therein. The degree of atelectasis varied from completed to partial, and in some areas of sections from the upper lobes there were large excessively dilated alveoli, with thickened walls, suggestive of chronic emphysema. The pulmonary parenchyma in all sections showed varying degrees of fibrosis.

The spleen and wall of the esophagus showed a diffuse eosinophilia.

Sections from the heart, aorta, liver, pancreas, adrenals, stomach and intestine, genitourinary tract and central nervous system were normal.

The final pathologic diagnoses of significance were :

1. Obstruction, tracheobronchial, bilateral complete, due to inspissated mucus.
2. Massive pulmonary collapse due to 1.
3. Death from asphyxia due to 1 and 2.
4. Bronchiectasis and bronchiolitis mild to moderately severe, involving each lower lobe.
5. Fibrosis, pulmonary, bilateral patchy disseminated, moderately severe.

COMMENT

The sudden and unexpected death of this patient, with attendant convulsions, suggested at first the possibility of cocaine poisoning. This was ruled out by the time interval and the pathologic changes. It is agreed that the symptoms of cocaine poisoning occur within a few minutes after the use of the drug,[14] a conclusion which King [14] based on study of 43 deaths due to local anesthesia. In this case at least an hour elapsed between the time of cocainization and the terminal episode. Further, postmortem examination of 20 deaths due to cocaine or cocaine derivatives failed to reveal any remarkable pathologic features other than venous congestion,[15] while in this case the gross and microscopic pathologic changes are very striking.

It is obvious that the immediate cause of death in this case was asphyxia due to the plugging of the bronchial tree by thick viscid mucus. The asphyxial nature of this death is confirmed by the terminal hyperglycemia in the arterial circulation, a finding which has been noted as a characteristic postmortem finding in deaths due to asphyxia.[16] The atelectasis followed secondary to the obstruction of the air passages and the absorption of the alveolar air by the alveolar capillaries during the agonal struggles. The convulsions were due to cerebral anoxemia.

The real question involved in this case is why the bronchi should have so suddenly filled with mucus and thus begun the fatal chain of events.

Except for the vague complaint of dyspnea when the patient first returned to the ward from bronchography, a symptom probably indicative of the onset of the filling of the bronchial tree with mucus, he had not had any symptoms or signs of asthma while under observation. Nevertheless the autopsy finding of thick mucus filling the tracheobronchial tree suggested asthma as an etiologic factor in the case. Authorities agree that the following features are characteristic of the lungs of patients who die of asthma per se:[17]

1. Grossly: (*a*) Lungs distended and voluminous, emphysematous and doughy in consistency. (*b*) Bronchi and bronchioles filled with viscid, tenacious mucus.

2. Microscopically: (*a*) Thickening and hyalinization of the basement membrane of bronchi and bronchioles. (*b*) Thickening and infolding of mucosa in bronchi and bronchioles. (*c*) Cellular infiltrate in mucosa and submucosa, composed of eosinophils, lymphocytes and plasma cells in varying proportions. (*d*) Mucous plugs in lumens of most bronchi and bronchioles, with the same type of cells in the mucus as are present in the tissues. (*e*) Hypertrophy of the musculature. (*f*) Evidence of hyperactivity of mucus-secreting glands, with pressure atrophy of acinar cells.

Tuft [18] agrees in general with the foregoing list of pathologic changes characteristic of asthma but states that, in certain cases in which the mechanism of death is mechanical obstruction of bronchi by sticky, gelatinous exudate, "partial or complete atelectasis may be present." However, no references are given, and the remainder of the literature cited, including Rackemann's thorough and critical review article, does not mention this possibility.

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[14] King, J. J.: Local Anesthesia in Otolaryngology and Rhinology, with Supplement on the Toxic Effects of Local Anesthetics, edited by Emil Mayer, New York, Paul B. Hoeber, 1926, p. 158. McNally, W. D.: Toxicology, Chicago, Industrial Medicine, 1937, p. 490. Sollmann, Torald: A Manual of Pharmacology, ed. 6, Philadelphia, W. B. Saunders Company, 1942, p. 320.

[15] King.[14] McNally.[14]

[16] Moritz, Alan R.: The Pathology of Trauma, Philadelphia, Lea & Febiger, 1942, p. 182. Jetter, W. W., and McLean, R. R.: Biochemical Changes in Body Fluids After Death, Am. J. Clin. Path. **13:** 178 (April) 1943.

[17] Vaughan, W. T.: Practice of Allergy, St. Louis, C. V. Mosby Company, 1939, pp. 946-947. Feinberg, S. M.: Allergy in Practice, Chicago, Year Book Publishers, Inc., 1944, p. 428. Craige, Branch, Jr.: Fatal Bronchial Asthma, Arch. Int. Med. **67:** 399 (Feb.) 1941. Fowler, Kenneth: Necropsy Studies on Two Patients Dying in Asthma, Pennsylvania M. J. **40:** 720 (June) 1937. Wiseman, J. R.: Report of a Case of Status Asthmaticus with Autopsy, Ann. Int. Med. **11:** 212 (July) 1937. Hansen.[5] Rackemann.[19]

[18] Vaughan: Practice of Allergy, p. 271.

It is evident that the case reported here presented the pathologic features described as characteristic for asthmatic deaths, except that atelectasis, instead of emphysema, was the outstanding gross pathologic feature. Of course, as Rackemann[19] points out, there must be a clinical history of asthma in order to classify a death as "death from asthma per se"; and in this case that history must remain only a matter of conjecture, because the possibility of asthma did not suggest itself while the patient was alive, and specific inquiry was not made. Nevertheless, in spite of a lack of history of asthma, the microscopic findings are so consistent with those of allergic asthma that there must be considered the possibility of an asthmatic substratum in the tracheobronchial tree at the time of instillation of lipiodol. Furthermore, tissue eosinophilia is known and recognized as evidence of allergic response,[20] and it is stated that when edema and eosinophilia are found in the tissues there is strong suspicion of the allergic character of the lesion. The conclusion seems justified that the bronchi and bronchioles in this case were allergically prepared to act as a shock organ in an allergen-antibody reaction and that the allergen responsible for the fatal reaction was lipiodol, probably the iodine fraction, since allergic sensitivity to iodine is well known and may cause very severe and even fatal reactions.[21]

The fatal reaction may be reconstructed as follows: The patient was allergic, sensitive to iodine and possibly to other substances also, and his bronchial-bronchiolar tree was specially sensitized as a shock organ. The instillation of lipiodol brought allergen (iodine?) into direct contact with the shock organ and by reason of its contact in relatively high concentration produced a rapid and intense asthma-like response in which the predominant feature was secretion of viscid mucus. Respiratory obstruction, asphyxia, cyanosis, convulsions and death then followed.

CONCLUSION

In this patient the tracheobronchial tree was allergically prepared to act as a shock organ. The patient had allergic sensitivity to some constituent of lipiodol, probably the iodine. The immediate contact between allergen and shock organ produced a rapid and severe asthma-like reaction in which the production of thick mucus predominated, causing bronchial obstruction, massive pulmonary collapse and death from asphyxia.

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19. Rackemann, F. M.: Deaths from Asthma, J. Allergy **15**: 249 (July) 1944.
20. Vaughan: Practice of Allergy, p. 51. Tuft, Louis: Clinical Allergy, Philadelphia, W. B. Saunders Company, 1938, pp. 62, 73.
21. Vaughan: Practice of Allergy, p. 831. Tuft: Clinical Allergy, p. 302.

Clinical Syndromes of War Neuroses.—Of all neuroses of war, these severe anxiety states present the most interesting diagnostic and therapeutic problems. No two clinical pictures are ever the same; each case represents a unique combination of symptoms, as highly personal as the combination of character traits which make up an individual personality. It is almost an impossibility to predict in any one case what course the illness will take; new symptoms may appear with startling suddenness and as rapidly disappear. Similarly it is difficult to anticipate how much spontaneous recovery will take place. Because of the severe initial distortion in personality from friends or relatives concerning the previous behavior of the individual patient, the preexistent personality structure and stability of the individual remain an assumption, and on this assumption must be based estimates of the degree of recovery.—Grinker, Roy R., and Spiegel, John P.: War Neuroses, Philadelphia, Blakiston Company, 1945.

TOXIC MANIFESTATIONS ASSOCIATED WITH PROLONGED ERTRON INGESTION

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and
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The effects of large doses of vitamin D on animals were described in detail some years ago.[1] Since the amounts of vitamin D required to produce toxic effects were far beyond that necessary for the prevention or treatment of rickets, these results seemed, at the time of their presentation, to be largely of academic interest. However, the use of large doses of vitamin D in the treatment of arthritis has exposed a great number of people to the hazards of hypervitaminosis D. For this reason it is important to renew interest in the effects of vitamin D overdosage and to emphasize again, as others have done recently,[2] the symptoms and consequences of its toxicity.

TABLE 1.—*Laboratory Examination in Case 1, Renal Insufficiency Caused by Ertron Ingestion.*

Hypervitaminosis D

	May 1944	September 1944	February 1945
Blood pressure:			
Systolic (mm. Hg)	116	106	112
Diastolic (mm. Hg)	72	66	72
Basal metabolic rate (%)	...	...	—13
Urea clearance (%)	...	...	31.8
Phenolsulfonphthalein test (2 hrs.) (%)	...	...	10
Concentration test (max. sp. gr.)	...	...	1 015
Urine:			
Albumin	2+	1+	20 mg. per 100 cc.
Calcium (mg./24 hrs.)	...	229	410
Blood:			
Hemoglobin (Gm.)	8.3	8	11.5
R. B. C. (million/cu. mm.)	2.69	3.60	3.61
Serum:			
Calcium (mg. per 100 cc.)	...	10.1	13.0†
Phosphorus (mg. per 100 cc.)	...	5.2	4.3†
Phosphatase (units*)	...	...	3.2
Plasma:			
Albumin (mg. per 100 cc.)	...	3.7	3.3
Globulin (mg. per 100 cc.)	...	2.0	2.1
CO_2-comb. (volumes per cent)	...	...	38 6
Blood:			
N.P.N. (mg. per 100 cc.)	...	60.7	45.2
Urea nitrogen (mg. per 100 cc.)	60†	40.5	...
Uric acid (mg. per 100 cc.)	...	6.7	...
Creatinine (mg. per 100 cc.)	...	4.3	...

* Bodansky units per 100 cc. serum. † Average values.

Some authors,[3] in reporting on the use of vitamin D in the treatment of arthritis, have tended to minimize

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Read before the Central Society for Clinical Research, Nov. 2, 1945.

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Dr. W. M. Freeman and the Children's Memorial Hospital assisted in making the metabolic study in case 3. Dr. Robert W. Keeton and the Illinois Research Hospital gave access to the films taken in September 1944 in case 1.

1. Shohl, A. T.: Physiology and Pathology of Vitamin D, in The Vitamins, Chicago, American Medical Association, 1939, chapter 24, pp. 459-474. Parks, A. E.: The Use of Vitamin D Preparations in the Prevention and Treatment of Disease, ibid., chapter 27, pp. 513-539. McLean, F. C.: Activated Sterols in the Treatment of Parathyroid Insufficiency, J. A. M. A. **117**: 609-619 (Aug. 23) 1941. Reed, C. I.; Struck, H. C., and Steck, T.: Vitamin D Chemistry, Physiology, Pharmacology, Experimental and Clinical Investigation, 1939, Chicago, University of Chicago Press.
2. Tumulty, P. A., and Howard, J. E.: Irradiated Ergosterol Poisoning: Report of 2 Cases, J. A. M. A. **119**: 233 (May 16) 1942. Danowski, Winkler and Peters.[10]
3. Snyder, R. G., and Squires, W. H.: A Preliminary Report on Activated Ergosterol: Form of High Dosage Vitamin D in Treatment of Chronic Arthritis, New York State J. Med. **40**: 708, 1940. Snyder, R. G.; Squires, W. H.; Forster, J. W.; Trager, C. H., and Wagner, L. C.: The Treatment of 200 Cases of Chronic Arthritis with Electrically Activated Vaporized Sterol, Industrial Med. **11**: 295, 1942. Snyder, R. G.; Squires, W. H. and Forster, J. W.: A Six Year Study of Arthritis Therapy, Indust. Med. **12**: 291, 1943. Steinberg, C. L.: Massive Doses of Vitamin D in Arthritis: Its Effect on Calcium Metabolism, J. Lab. & Clin. Med. **24**: 17, 1938.

the seriousness of the toxic effects which it produced. Others[4] have pointed out the variable response of human beings to large doses of vitamin D and the possible damage to the kidneys which may result from its use.[5] The manufacturers of one vitamin D preparation, Ertron, have consistently maintained that serious toxic effects have not resulted from the use of their preparation. However, Boots[6] observed toxic manifestations in 18 of 31 arthritic patients who received Ertron, and Freyberg[7] stated that it has real potentialities for producing undesirable effects. McChesney and Messer[8] demonstrated that it was a potent hypercalcemic factor when administered to dogs in large amounts. One of us[9] called attention in 1942 to the false sense of safety which the advertising mentioned engendered in the mind of the physician who used such preparations in the treatment of arthritis.

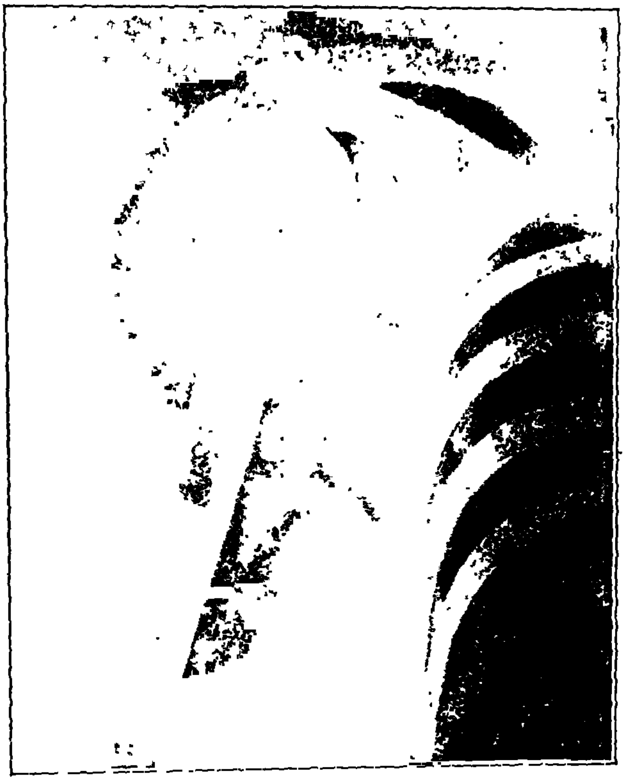

Fig. 1 (case 1).—Right shoulder in September 1944, showing metastatic calcification associated with prolonged Ertron medication.

There seems to be general agreement regarding the view that doses of vitamin D such as are used in the treatment of arthritis may be toxic. However, there is a difference of opinion as to how serious these toxic reactions may be. That such reactions may be sufficiently serious to jeopardize life and health is evidenced by the severe renal insufficiency recently reported by Danowski, Winkler and Peters[10] as occurring in 2 patients who had received 150,000 to 500,000 units of vitamin D daily. The following case reports are presented as further evidence of the fact that severe renal insufficiency and disability may result from the ingestion of doses of Ertron such as are currently used in the treatment of arthritis. The data on case 3 demonstrate that the product reduced calcium retention by a child with rheumatoid arthritis.

Case 1.—A white man aged 49 was admitted to a hospital Feb. 25, 1945 because of weight loss, weakness, anorexia, desquamation of the skin, polyuria, pruritus and bursitis.

The patient stated that he took Ertron irregularly in 1942, including one period of 300,000 units daily for three months, because of bursitis of the right shoulder. In March 1943 he had a prostatectomy and at that time he had some nitrogen retention. Ertron medication was resumed at this time (100,000 units per day) for three months. His weight in 1943 was 145 pounds (66 Kg.).

During the winter of 1943 and early spring of 1944 the patient suffered from generalized pruritus, weakness and shortness of breath. In March he took a vacation and during this time experienced some ataxia and developed an effusion of the right shoulder and hip. In May 1944 he was admitted to a diagnostic clinic because of weakness, anorexia and a loss of weight. The outstanding physical findings at this time were exfoliative dermatitis and enlarged inguinal lymph nodes. The weight was 112 pounds (51 Kg.), the blood pressure 116/72. X-ray films of the chest and stomach were normal. The laboratory findings at this time and subsequently are included in tables 1 and 2. A diagnosis of chronic glomerular nephritis with renal insufficiency and severe secondary anemia was made and the patient returned to his home, where his condition remained unchanged.

In September 1944 he entered another hospital complaining of generalized itching, weakness, fatigue, exfoliation of the skin and pain in the breasts.

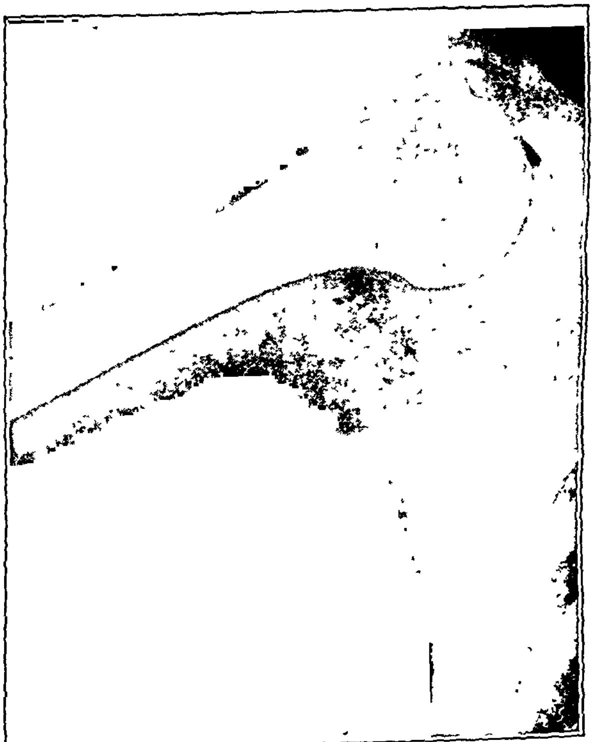

Fig. 2 (case 1).—Right shoulder in February 1945, six months after ingestion of Ertron and a high milk diet had been discontinued.

At this time his weight was 102 pounds (46 Kg.), his blood pressure 106/66. There were emaciation and exfoliation of the skin, connective tissue deposits on the conjunctivas and tender breasts, the right one being enlarged and fluctuant. The right shoulder bore a large soft tumor and showed slight limitation of motion. The ankles were somewhat edematous, the prostate slightly enlarged. X-ray examination revealed calcium deposits in the soft tissues at many points (figs. 1 and 2). It was noted that the patient largely restricted his intake to water, milk and milk dishes. He complained bitterly of the cold. The patient was diagnosed as having pityriasis rubra, deposits of calcium in the bursae and benign hypertrophy of the prostate.

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[4] Abrams, N. R., and Bauer, W.: Treatment of Rheumatoid Arthritis with Large Doses of Vitamin D, J. A. M. A. **111:** 1632 (Oct. 29) 1938.

[5] Slocumb, C. H.: Vitamin D in the Treatment of Infectious Arthritis, Ann. Int. Med. **16:** 241, 1942.

[6] Boots, A. H., cited by Comroe, B. I.: Arthritis and Allied Conditions, Philadelphia, Lea & Febiger, 1944, pp. 498-499.

[7] Freyberg, R. H.: Treatment of Arthritis with Vitamin and Endocrine Preparations, J. A. M. A. **119:** 1165 (Aug. 8) 1942.

[8] McChesney, E. W., and Messer, F.: The Metabolism of Calcium and Phosphorus as Influenced by Various Activated Sterols, Am. J. Physiol **135:** 577 (Feb.) 1942.

[9] Freeman, Smith: Irradiated Ergosterol Poisoning, *Correspondence*, J. A. M. A. **119:** 968 (July 18) 1942.

[10] Danowski, T. S.; Winkler, A. W., and Peters, J. P.: Tissue Calcification and Renal Failure Produced by Massive Dose Vitamin D Therapy of Arthritis, Ann. Int. Med. **23:** 22 (July) 1945.

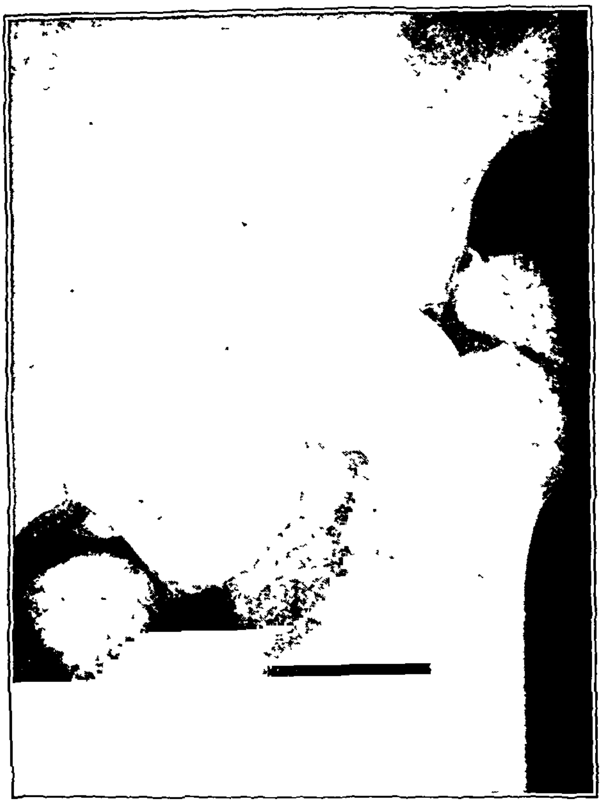

Fig. 3 (case 1).—Left side of pelvis in September 1944, showing calcification above hip joint and in prostate.

Part of the laboratory data obtained at this time are included in table 1.

During the latter part of 1943 and the first half of 1944 the patient stated that he took with some irregularity 100,000 to 300,000 units of Ertron daily.

At the time of admission to the original hospital, Feb. 25, 1945, the patient stated that he had not had any Ertron since September 1944. At this time he also discontinued drinking milk in accordance with instructions given him at the second hospital. The principal physical findings at the time of this admission to the first hospital were weight 118 pounds (53.5 Kg.), blood pressure 112/72, generalized exfoliation and pigmentation of the skin, emaciation, moderate pitting edema of the lower extremities and heavy fat deposits in the conjunctivas. X-ray examination again revealed extensive calcification about numerous joints, but these deposits were less dense than shown on the films taken in September 1944. The excretion urograms showed poor kidney function The patient had a subnormal body temperature throughout his stay in the hospital. He was diagnosed as having Ertron intoxication, exfoliative dermatitis and subdeltoid bursitis.

Since leaving the hospital the patient's urinary calcium has remained elevated. Roentgenologic examination of the right shoulder and hip taken July 23, 1945 indicates that there is still some soft tissue calcification, but the deposits are less dense and extensive than on the previous films (figs. 1, 2, 3 and 4). The skin at this time was much improved but was still edematous about the ankles. The serum calcium was 11.20, inorganic phosphorus 4.1 and nonprotein nitrogen 45.1 mg. per hundred cubic centimeters on July 23, 1945. *The twenty-four hour urinary calcium at the same time was 405 mg.* Polyuria and albuminuria were still present.

CASE 2.—A white man aged 39, admitted to a hospital on Aug. 29, 1945 because of low back pain, nausea, vomiting and generalized aching, stated that he developed a backache two and a half years previously, during an attack of influenza, which had persisted to some degree ever since. He had been examined repeatedly by numerous physicians. In 1944 the patient was admitted to a second hospital, where the backache was ascribed to fibrositis and nonspecific prostatitis. At that time the blood pressure was 132/72 and he weighed 135 pounds (61 Kg.). The blood urea was 26 mg. per hundred cubic centimeters.

Various forms of therapy were tried, including typhoid vaccine, thyroid, oral calcium, physical therapy, osteopathy, braces and vitamins. Previous roentgenograms of the teeth and spine were negative.

TABLE 2.—*Composition of Joint Exudate and Exfoliated Skin in Patient 1, with Ertron Poisoning*

	Aspirated Fluid (3/8/45)	Exfoliated Skin (March 1945)
Calcium	1.80 Gm. per 100 cc.	3.08 mg. per 100 Gm.
Phosphorus	0.778 Gm. per 100 cc.	3.50 mg. per 100 Gm.
Protein	3.22 Gm. per 100 cc.	
Nonprotein nitrogen	65.0 mg. per 100 cc.	

In the spring of 1945 the patient took one capsule daily of vitamin D (50,000 units) for fifty days. In June he started Ertron capsules, taking six capsules per day, 250 capsules in all, and had in addition one intramuscular injection of 500,000 units. Three weeks prior to admission he stopped this medication because of the onset of nausea, vomiting and extreme restlessness. His teeth became extremely sensitive to temperature and sharp shooting pains developed in both legs. An old bursitis of the left shoulder flared up. His eyes became bloodshot, and a maculopapular eruption appeared on his face.

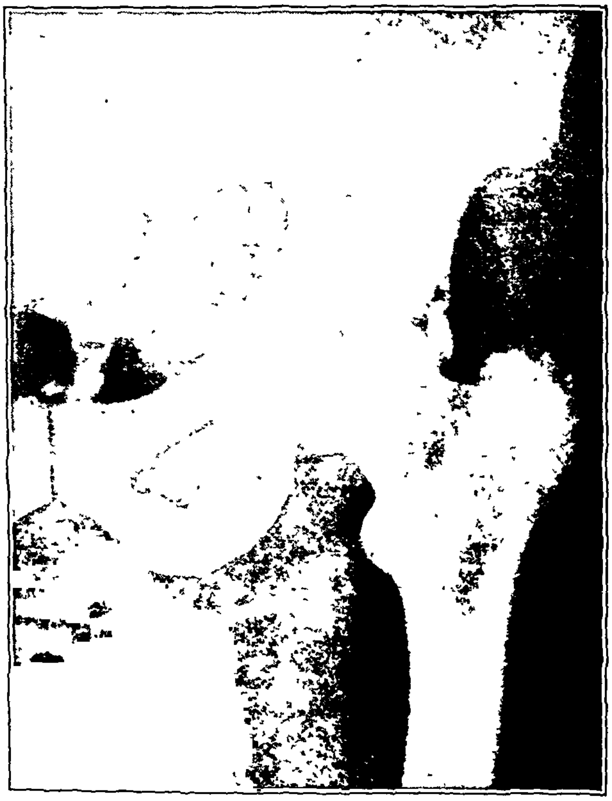

Fig. 4 (case 1).—Left side of pelvis in February 1945, six months after ingestion of Ertron and a high milk diet had been discontinued.

He also complained of daytime frequency of urination and nocturia, and at the time of admission he had been unable to sleep for five days and nights despite sedation.

On physical examination the weight was 136 pounds (61.7 Kg.), the blood pressure was 155/85 and the vessels of the conjunctivas were much injected. The heart, lungs and abdomen were normal. Tendon and superficial reflexes were present. Spasm of the sacrospinalis muscle was evident. The prostate was small and indurated. The prostatic secretion contained some leukocytes, and there was a residual urine of 60 cc. No abnormalities of the teeth or skeleton could be demonstrated by x-ray. The electrocardiogram showed left axis deviation but was otherwise normal. The laboratory findings obtained at this time and on a subsequent visit to the hospital are shown in table 3. He was diagnosed as having renal insufficiency, probably due to excessive Ertron medication, chronic myositis of the sacrospinalis muscle and chronic prostatitis.

The patient remained in the hospital seven days and was extremely restless despite sedation. The body temperature remained subnormal throughout his stay. The blood pressure decreased to 134/80 before the patient was discharged. He was instructed in the selection of a diet low in calcium and phosphorus and encouraged to maintain a high fluid intake.

On his next admission (Oct. 17, 1945) there were signs of definite improvement. He no longer had insomnia, pains in the back and legs, hypersensitive teeth or extreme restlessness. His appetite was better, there was no nausea, and the patient stated that his head seemed much clearer. Physical examination was essentially negative except for the persistence of some congestion of the conjunctival vessels. The laboratory data obtained at this time (table 3) gave further evidence of this improvement.

EFFECT OF ERTRON ON CALCIUM EXCRETION

The effect of Ertron on the calcium balance of a patient with arthritis was also studied. This case history and procedure follows:

CASE 3.—A white boy aged 9 years, weighing 49 pounds (22 Kg.) had had rheumatoid arthritis five years at the time this study was made. When 4 years of age (in the fall of 1932) he had a sudden onset of pain in the right ankle associated with redness, limitation of motion and fever (104-105 F. daily for five months). The fever and redness of the joints subsided, but enlargement and limitation of motion persisted. During the succeeding four and a half years other joints became involved. At the time of this study he had limitation of motion and enlargement of the joints of the fingers, toes, wrists, elbows, ankles, knees and hips. X-ray studies showed considerable rarefaction of the bones in the involved areas.

TABLE 3.—*Laboratory Findings in Patient 2, with Renal Insufficiency Caused by Ertron Ingestion**

	July 1944	August 1945	October 1945
Blood pressure:			
Systolic (mm. Hg)	132	155	112
Diastolic (mm. Hg)	72	85	75
Basal metabolic rate (%)		..	−12
Urea clearance (%)		26.3	37.4
Phenolsulfonphthalein test (2 hrs.) (%)		22	42.5
Concentration test (max. sp. gr.)		1.015	...
Urine			
Albumin (mg. per 100 cc.)		5	Neg.
Calcium (mg./per hrs.)		126	68
Serum:			
Calcium (mg. per 100 cc.)		12.0	12.2
Phosphorus (mg. per 100 cc.)		5.5	3.9
Phosphatase (units †)			5.1
Blood			
N. P. N. (mg. per 100 cc.)		66	40.5
Urea nitrogen (mg. per 100 cc.)	16	43	17.2
Creatinine (mg. per 100 cc.)		2.5	1.8
Hemoglobin (Gm.)		12.0	13.0
R. B. C. (million/cu. mm.)		3.85	3.94

* Ertron administration was stopped a few days prior to the determination made in August 1945 and not resumed.

† Bodansky units per 100 cc. serum.

During the time of the metabolic study his clinical condition remained unaltered until Ertron administration, together with a high calcium diet, was instituted. During the second collection period on this regimen the patient complained of joint pains, loss of appetite and frequency of urination. At this time there was puffiness about the eyes and albuminuria. The symptoms and albuminuria disappeared approximately one week after Ertron administration was discontinued.

The low calcium diet and metabolic procedure were similar to that described by Bauer and Aub.[11] The low calcium diet provided 1,600 calories per day and contained, by analysis, 0.2 Gm. of calcium. The high calcium diet was the same with the addition of 1 quart of milk daily and a suitable reduction in calories from other sources. All control data were obtained before treatment with Ertron was instituted. Each five day metabolic period was preceded by one week on the diet before collection of excreta was begun. The studies consisted of two metabolic periods on each diet. Ertron medication (100,000 units daily) was begun one week before the collection of excreta and continued uninterrupted throughout the period of observations of its effect, while the patient was on a low and a high calcium intake. The results of this study are shown in table 4.

TABLE 4.—*Effect of Ertron on Calcium Balance in a Child with Rheumatoid Arthritis*

		Low Calcium Diet, 0.2 Gm. Daily		High Calcium Diet, 1.4 Gm. Daily	
Case 3		1st Period Mg./Period	2d Period Mg./Period	1st Period Mg./Period	2d Period Mg./Period
Urine	Control	176.7	174.7	464.3	337.1
	Ertron	320.2	343.3	776.2	731.3
Feces	Control	649.2	629.2	2,368.0	1,986.0
	Ertron	526.0	480.0	3,176.0	2,816.0
Total	Control	825.9	803.9	2,832.3	2,323.1
	Ertron	846.2	823.3	3,952.2	3,547.3
Balance	Control	+174	+196	+4,168	+4,677
	Ertron	+154	+177	+3,048	+3,452

Excreta collected in five day periods.

COMMENT

The 2 patients apparently suffering from toxic symptoms due to Ertron had many findings in common, including Ertron ingestion, renal insufficiency, a high milk consumption, polyuria, albuminuria, lassitude, weakness, anorexia, eosinophilia, anemia, enlargement of the prostate, bursitis, skin eruption, involvement of the conjunctiva and subnormal body temperature. It is beyond the scope of this paper to discuss these findings in any detail. The symptoms of vitamin D poisoning have been well described by others.[12] Slocumb[6] reported an elevation of the blood urea in a patient receiving vitamin D who had no symptoms of poisoning. Once manifestations of toxicity have occurred, they may persist for some time after vitamin D administration has been discontinued. The prolonged effects of vitamin D poisoning are well illustrated in cases 1 and 2 as in cases reported by others.[2]

Metastatic calcification of the soft tissues is one of the characteristic findings in animals poisoned with vitamin D, and the kidney is frequently the site of these deposits. Ashford[13] demonstrated that metastatic calcification, produced experimentally in rabbits, underwent resorption after vitamin D administration was discontinued. Metastatic calcification was present in 1 of the patients in the report of Danowski, Winkler and Peters and was a conspicuous finding in the first patient in this report. This patient, though maintained on a low calcium-low phosphorus diet has continued to excrete approximately 400 mg. of urinary calcium daily as judged by repeated calcium determinations during the past eight months. It is an interesting finding that the calcium-rich viscid fluid aspirated from the subdeltoid bursa of this patient had the same calcium-phosphorus ratio as normal bone (2.30) [14] (table 2). The calcium and phosphorus content of desquamated skin are also included in this table. No comparable skin sample from patients with any other condition has been obtained for analysis.

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[11] Bauer, W., and Aub, J. C.: Studies of Inorganic Salt Metabolism I. The Ward Routine and Methods, J. American Dietet. A. 3: 106, 1927.

[12] Reed, C. I.: Symptoms of Viosterol Overdosage in Human Subjects, J. A. M. A. 102: 1745 (May 26) 1934. Tumulty and Howard.[2] Danowski, Winkler and Peters.[10]

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Numerous studies have demonstrated that the absolute as well as the relative amounts of calcium and phosphorus in the diet influence the toxicity of vitamin D.[15] Both of the intoxicated patients presented in this report gave as a part of their history that they consumed from 1 to 2 quarts of milk daily. One of the patients of Danowski and his associates was reported as drinking a quart of milk daily. Freeman and Farmer [16] showed that a given dose of vitamin D may or may not produce hypercalcemia in dogs, depending on their calcium intake. It has also been shown that dogs given large doses of vitamin D manifest a more severe and prolonged hypercalcemia than normal dogs following the oral [15] or intravenous [17] administration of calcium. In view of the experimental evidence, it is surprising to find that little attempt has been made to control the calcium intake of patients receiving large doses of vitamin D. Some of the patients have been encouraged to drink liberal amounts of milk.[18] It is reasonable to suppose that the high calcium and phosphorus intake which a quart or more of milk daily provides contributed materially to the toxicity of Ertron taken by the patients who were the subjects of the present report. It has also been shown [19] that a liberal milk intake, as well as other foods rich in phosphorus, have an adverse effect on the blood chemistry, symptomatology and roentgenologic findings of patients with renal insufficiency.

The metabolic study in case 3 revealed an increase in the urinary excretion of calcium while the patient was receiving Ertron both on the low and on the high calcium diets. Ertron reduced the fecal excretion of calcium on the low calcium diet and increased the fecal loss of calcium while the patient was on a high calcium diet. Studies on animals have shown that large doses of vitamin D reduce calcium retention, as evidenced by decalcification of the bones, even to the point of causing spontaneous fractures.[20] Ertron reduced calcium retention slightly on the low and definitely on the high calcium diets (table 4). While this patient was on a high calcium diet and receiving Ertron he developed an albuminuria which had never been present before and which cleared up one week after Ertron administration was discontinued. The serum calcium of this child was not elevated at the end of the metabolic study. These findings are evidence that an increased urinary calcium excretion and conditions favorable to the deposition of calcium in the kidney may precede, and need not be accompanied by, hypercalcemia. These considerations make apparent how renal failure might occur without having been preceded by a hypercalcemia. These results show clearly that the kidneys of a person taking excessive doses of vitamin D may be required to excrete much more calcium than would normally be the case, particularly when the calcium intake is high. An increased urinary excretion of inorganic phosphate usually occurs also in hypervitaminosis D.[21] The increased concentration of calcium and phosphate in the fluids that are in contact with the kidney would provide favorable circumstances for calcification of this organ. That the organ need not be previously damaged to undergo calcification during hypervitaminosis D is indicated by the experimental study of Ham [22] as well as by the work of many other workers.

According to a report prepared by a committee of the American Rheumatism Association [23] the therapeutic effects of large doses of vitamin D are of doubtful value in the treatment of arthritis. The whole question of vitamin D therapy in the treatment of arthritis has been thoroughly discussed by Comroe.[24] The therapeutic objectives to be achieved by large doses of vitamin D have not been clearly formulated by any of its exponents. The results obtained in case 3 indicate that large doses of Ertron may reduce calcium retention by the body. This effect would seem to be undesirable for patients who already have a rarefaction of the skeleton. Irrespective of the merits of vitamin D in the treatment of arthritis, it remains an established fact that large doses are toxic to human beings and animals. That Ertron is no exception to this statement is evidenced by the following facts: (*a*) Both patients in the present report and 1 patient in the report by Danowski and his associates showed toxic manifestations of a serious nature associated with an altered calcium metabolism while taking Ertron, and these manifestations declined after this medication was discontinued; (*b*) Ertron was shown to be a potent hypercalcemic agent in dogs by McChesney and Messer; [5] (*c*) Ertron is a potent source of vitamin D, according to the claims of the manufacturer.[25]

It is beyond the scope of this paper to discuss the toxicity of sterols, other than vitamin D itself, that may contribute to the toxicity of vitamin D preparations. It has been shown[26] that pure, crystalline vitamin D (calciferol) is toxic and that hypercalcemia is associated with toxic manifestations from this substance. A hypercalcemia accompanied by a significant increase in the ionic calcium content of the blood, from any cause, is usually associated with manifestations of toxicity. If elevation of the blood calcium persists for a sufficient length of time, renal failure is the inevitable consequence. Instances of toxicity from vitamin D in the absence of hypercalcemia may be due to hyperphosphatemia which occurs secondary to renal failure or because the blood inorganic phosphorus of some species (e. g. the rabbit) is readily elevated by large doses of vitamin D. Depression of the hypercalcemia and elevation of the serum inorganic phosphorus and nonprotein nitrogen were shown by Taylor and his associates[27] to be characteristics of advanced irradiated ergosterol poisoning in dogs. These authors as well as others[28] have pointed out the decided similarity of the toxic manifestations caused by solution of parathyroid and by vitamin D. Collip[29] has shown that renal insufficiency, accompanying experimental hyperparathyroidism in dogs, reduces the hypercalcemia while the inorganic phosphorus and nonprotein nitrogen increase to values far above normal. More recently, Neufeld and Collip[30] have shown that hypercalcemia cannot be produced by solution of parathyroid administered to dogs with a hyperphosphatemia.

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CONCLUSION AND RECOMMENDATIONS

The use of large doses of vitamin D in the treatment of arthritis is a dangerous practice which may do the patient harm. The use of repeated large doses of vitamin D for any therapeutic purpose should be accompanied by appropriate tests, performed at regular intervals, to determine the state of calcium metabolism and kidney function. The maintenance of a relatively constant calcium and phosphorus intake simplifies this problem. The following tests are suggested as appropriate for this purpose: blood nonprotein nitrogen or urea, serum calcium and inorganic phosphorus; the twenty-four hour urinary excretion of calcium with the patient maintained on a low calcium diet for no less than two days prior to the collection of urine; qualitative test for the presence of albumin in the urine; concentration-dilution test and phenolsulfonthalein excretion as measures of tubular function. It follows that such tests should be applied to patients prior to the administration of large doses of vitamin D and that evidence of impaired kidney function should be considered as a contraindication to this treatment. We do not mean to imply that these tests, though the results should be consistently within the normal range, give one assurance that metastatic calcification is not promoted by this treatment. However, gross impairment of the kidneys, such as was present in cases 1 and 2 of this report, could certainly have been averted if the tests mentioned had been applied routinely in conjunction with the Ertron therapy. It is suggested that the history taken on every patient suspected of having renal disease should include questions intended to determine whether or not the patient has ever taken large doses of vitamin D.

SUMMARY

1. Renal insufficiency occurred in 2 patients receiving doses of Ertron such as are used currently in the treatment of arthritis.

2. A decreased calcium retention and an increased urinary excretion of calcium occurred in a child with rheumatoid arthritis who was given 100,000 units of Ertron daily.

3. Large doses of vitamin D from any source are potentially toxic, and this toxicity can be explained as due to its effect on calcium and phosphorus metabolism and kidney function.

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EFFECT OF PENICILLIN ON COURSE OF EARLY SYPHILIS

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In early syphilis prompt diagnosis and initiation of treatment decrease opportunity for dissemination of infection and increase probability of cure. The dual effectiveness of penicillin against Treponema pallidum and Neisseria gonorrheae has complicated the problem of the early diagnosis of syphilis. The incubation period of gonococcic urethritis is usually three to five days and exceptionally one to two weeks;[1] the incubation period of primary syphilis is ten to ninety days, with an average of three weeks.[2] Consequently, in simultaneous infections the urethritis may be treated with penicillin while the patient is in the incubation stage of syphilis. For various reasons also treatment may be given when a chancre is already present: the lesion may be missed because of its unusual location, as in intrameatal, intraurethral, extragenital or cervical chancres; the chancre may be concealed by inflammatory phimosis or it may be regarded as a banal lesion; and, in cases in which syphilis is suspected, the diagnosis may seemingly be excluded by one or more negative dark field examinations or serologic tests for syphilis.

When early syphilis is treated with 60,000 to 1,200,000 units of penicillin in seven and one-half days, the disappearance of treponemes from lesions, the healing of lesions and the reversal of serologic tests are practically the same with all dosages. The chief difference is in the incidence of relapse, which increases as the dose decreases and is prohibitive with the smaller doses of 60,000 to 300,000 units.[3]

In uncomplicated gonococcic urethritis the usual dose of penicillin is 100,000 units given over a period of nine to twelve hours; less often 200,000 to 300,000 units is administered in twenty-seven to forty-two hours or in a single injection in beeswax-peanut oil.[4] Since

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the effects of these dosage schedules on early syphilis are not definitely known, it seemed desirable to review 7 cases of simultaneous infection observed in our clinic and to evaluate 8 cases collected from the literature. That the problem is more than academic is shown by the observations of Kemp and Shaw,[5] who found primary syphilis associated with gonorrhea in 1.4 per cent of 500 males and 3.0 per cent of 500 females.

REPORT OF CASES

For the sake of convenience, the case reports are numbered in sequence: Cases 1 to 7 were observed in our clinic, and cases 8 to 15 have been collected from the literature.

Case 1.—A white soldier aged 34 was exposed on April 24, 1945 and reported with a urethral discharge on May 3. A diagnosis of gonococcic urethritis was established, and on the same day the patient was given four intramuscular injections of 25,000 units of penicillin in saline solution at three hour intervals. Reexaminations were made at weekly intervals for the next three weeks; the patient remained clinically well, and bacteriologic studies for N. gonorrheae were negative. On May 27, thirty-three days after the last exposure, the patient developed an ulcer in the coronal sulcus of the penis; dark field examination revealed Treponema pallidum, and the Kahn test of the blood was negative.

Case 2.—A white soldier aged 32 was exposed on Nov. 24, 1944 and developed a urethral discharge on December 3. On December 9, after the diagnosis of gonococcic urethritis was confirmed, he was given 100,000 units of penicillin in saline solution in four intramuscular injections of 25,000 units at three hour intervals. On Jan. 13, 1945, fifty days after the last exposure, the patient developed a penile ulcer; dark field examination revealed Treponema pallidum, and the Kahn test of the blood was negative.

Case 3.—A Negro soldier aged 21 received 100,000 units of penicillin for gonococcic urethritis on Nov. 14, 1944. No penile lesion was present and the serologic test for syphilis was negative. The last sexual exposure occurred approximately seven days before the appearance of the urethritis, and the patient denied any subsequent exposure. At no time during the observation period was a penile lesion or an eruption observed by the patient or the physician. A routine Kahn test of the blood was performed on December 18, and it was found positive (4 units); Kahn tests on Dec. 28, 1944 and Jan. 17, 1945 were also positive and showed an increase from the original titer of 4 units to 160 units. On January 17 the patient was again examined thoroughly and no lesions of the skin and mucous membranes were found, the only abnormality being a moderate generalized lymphadenopathy, most pronounced in the inguinal regions.

Case 4.—A white soldier aged 24 was seen on May 31, 1945 with a urethral discharge and a small, nonindurated erosion on the mucous surface of the prepuce. The last sexual exposure had occurred on May 8. The smear and culture of the urethral discharge established the diagnosis of gonococcic urethritis; a single dark field examination and Kahn and Wassermann test of the blood were negative. On June 1 the patient was given 100,000 units of penicillin intramuscularly in four equal doses at three hour intervals. The patient was not seen again until August 25, when he returned with a large punched-out, indurated ulcer of the external surface of the prepuce and a generalized secondary syphilitic eruption. The ulcer had been present for twenty-five days but the patient had been reluctant to report it. The original erosion of the prepuce was completely healed. The dark field examination revealed Treponema pallidum, and the Kahn and Wassermann tests of the blood were positive. There had been no sexual exposure since May 8, and the recurrent (?) chancre had appeared on August 1, that is, eighty-five days later.

Case 5.—A Negro soldier aged 21 was given a single intramuscular injection of 100,000 units of penicillin in beeswax-peanut oil for gonococcic urethritis. Prior to treatment a small, nonindurated excoriation was noted at the urethral meatus, but this was attributed to the profuse discharge and no dark field examination was made. There was no enlargement of the inguinal lymph nodes. About six hours after the penicillin injection the patient complained of severe chilly sensations and feverishness, and his temperature was found to be 103.8 F. Primary syphilis was immediately suspected, and it was observed that the excoriation at the meatus had increased in size. A dark field examination was made at once, with negative results. Dark field examinations were repeated daily thereafter, and on the third day following treatment Treponema pallidum was demonstrated. The serologic tests for syphilis were positive.

Case 6.—A white soldier aged 35 was last exposed on July 23, 1945 and on August 17 he noted a lesion of the mucous surface of the prepuce. When he reported to his clinic on August 20 there was a balanitis and purulent discharge, and, without requisite laboratory examinations, 100,000 units of penicillin was given intramuscularly in divided doses. About four hours after the first injection the patient developed fever and generalized aching pains, and his temperature was found to be 103.2 F. The fever was erroneously interpreted as recurrent malaria, although no plasmodia were present in the blood smear. The patient was referred to the Venereal Disease Clinic on August 23 and was found to have a large healed chancre of the prepuce, a secondary syphiloderm and, repeatedly, strongly positive serologic tests for syphilis.

Case 7.—A white soldier aged 22 was treated oversea on July 3, 1945 for gonococcic urethritis with 100,000 units of penicillin administered over a period of eight hours. The patient stated that there were no genital lesions and no inflammatory phimosis when he was treated. About four to five hours after the initial dose of penicillin the patient developed fever, chilly sensations and generalized aching pains; subsequently there was severe headache, and the temperature rose to 105.8 F. The patient was hospitalized, but no cause for the fever was found, and the temperature became normal within twenty-four hours. The serologic tests for syphilis were negative. On August 11 the patient noted a generalized eruption, and he was referred to the Venereal Disease Clinic. He was found to have a generalized secondary syphilitic eruption, the dark field revealed Treponema pallidum, and the serologic tests were strongly positive for syphilis.

Case 8.—Ricchiutti[6] reported the administration of 100,000 units of penicillin in saline solution to a patient with gonococcic urethritis and inflammatory phimosis. Following the second injection of 20,000 units the patient's temperature rose to 101.4 F. and the prepuce became more swollen. A dorsal slit was performed and an ulcer of the sulcus was exposed. Dark field examinations were negative; the Kahn test of the blood, which was negative at first, became positive sixteen days after the treatment with penicillin.

Case 9.—Carpenter[7] reported that a patient received 50,000 units of penicillin in saline solution in five intramuscular injections of 10,000 units twenty-two days after the last exposure. The patient developed two clinically typical but dark field negative penile ulcers on the forty-eighth day after exposure, and it was not until the seventy-second day that the diagnosis of syphilis was established, when the serologic tests became positive.

Case 10.—Boyd, Wagner and Hewson[8] published a report of a case in which urethritis and epididymitis were associated with penile ulcers. Since the dark field examination and the Kahn test of the blood were negative, treatment was instituted and 80,000 units of penicillin given. The penile ulcers healed but recurred about twenty-seven days later at the original site. The Kahn tests of the blood remained negative, but some four weeks later Treponema pallidum was demonstrated in the lesions.

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[6] Ricchiutti, J. F.: Penicillin Therapy in Gonorrhea with Associated Undiagnosed Early Syphilis, U. S. Nav. M. Bull. **43**: 1031 (Nov.) 1944.

[7] Carpenter, C. C.: *Failure of Penicillin to Prevent Syphilis*, U. S. Nav. M. Bull. **43**: 389 (Aug.) 1944.

[8] Boyd, G. G.; Wagner, J. A., and Hewson, G. F.: Effects of Subtherapeutic Dose of Penicillin on Development of Primary Lesion, U. S. Nav. M. Bull. **43**: 1034 (Nov.) 1944.

Case 11.—Canizares[9] reported a similar case in which the dark field examination and Kahn test of the blood were negative. Both the urethritis and the penile lesion responded to 50,000 units of penicillin. Eighteen days following treatment the penile ulcer recurred, and five days after that the dark field revealed Treponema pallidum.

Case 12.—Baier and Pincus[10] recorded a case in which the penile lesion was not called to the attention of the physician until 100,000 units of penicillin had been given for gonococcic urethritis. Several dark field examinations and Kahn tests of the blood were negative. The penile ulcers healed and recurred about a month later. Dark field examinations remained negative, but repeated serologic tests for syphilis were positive.

Case 13.—Hailey[11] treated a patient for gonococcic urethritis with 100,000 units of penicillin only after repeated dark field examinations of the penile lesions and Kahn tests of the blood had been negative. The penile ulcers healed and recurred about a month later. Dark field examinations remained negative, but repeated serologic tests for syphilis were positive.

Case 14.—Sternberg and Turner[12] recorded an instance in which 100,000 units of penicillin was given before a dark field examination was made of a penile ulcer. The following day the dark field examination was negative and the ulcer healed rapidly. "Six weeks later a typical dark field positive chancre appeared in the same location. The patient denied further sexual exposure."

Effect of Penicillin on the Syphilitic Infection, and Number of Days After Penicillin Treatment That a Positive Diagnosis of Syphilis Was Established

Case No.	Effect of Penicillin on Syphilitic Infection	Number of Days After Penicillin Treatment: Positive *Dark Field*	Number of Days After Penicillin Treatment: Positive Serologic Test
1	Prolonged incubation period....	24	..
2		35	..
9		..	50
3	Symptomless infection..........	..	34
4	Chancre heals and later recurs..	85	85
10		55	..
11		23	..
12		..	30+
13		..	30+
14		42	..
15		..	60+
5	Febrile Herxheimer reaction.....	3	3
6		..	3
7		39	39
8		..	16

Case 15.—Shafer and Zakon[13] observed a patient who had received elsewhere 100,000 units of penicillin for gonococcic urethritis at the same time that he had a penile lesion. Apparently no dark field examination of the penile lesion had been made, but the Kahn test of the blood had been negative. Two months later the patient was found to have a recurrence of the penile lesion and a generalized secondary eruption; the Kahn and Wassermann tests of the blood were positive.

The pertinent data in the 15 cases are presented in the accompanying table. It is apparent that the diagnosis of syphilis was established in every case, by appropriate laboratory measures, less than ninety days after penicillin was administered for gonococcic urethritis. The longest period was eighty-five days, in case 4, but this was only because of failure to return for observation at the usual intervals following treatment.

COMMENT

The doses of penicillin used for gonococcic urethritis may have several potential effects on coincidental early syphilitic infection. When given during the incubation period it is conceivable that the syphilitic infection may be cured; but it is more likely that a chancre will appear, perhaps after a prolonged period of incubation, or that a completely symptomless infection will result. Treatment during the primary stage of syphilis may be anticipated to heal the lesion prematurely, following which the lesion may recur, the disease may be rendered asymptomatic or a secondary eruption may appear; or the action of the penicillin on the treponemes may evoke a febrile Herxheimer reaction.

Of the group of 15 patients evaluated, 4 received 50,000 or 100,000 units of penicillin while in the incubation period (cases 1, 2, 3 and 9). Clearly the infection was cured in none, for all 4 cases progressed; 3 went on to the development of a chancre, and the fourth had a symptomless infection. The chancre appeared in the 3 cases approximately 33, 48 and 50 days after the last sexual contact. While these incubation periods are definitely prolonged beyond the average of 21 days, they are well within the upper limit of 90 days. In the fourth case (case 3) no clinical manifestations of syphilis appeared at any time, and the diagnosis was made only by repeatedly positive serologic tests. Prolonged incubation periods, and symptomless infections—Moore[14] estimates symptomless infections at 20 per cent in males and 33 per cent in females—occur even in the untreated syphilitic patient. It will require study of large groups of patients to determine whether subcurative doses of penicillin cause a significantly increased incidence of these clinical phenomena.

In the 11 patients treated during the primary stage of syphilis, the chancres tended to heal and to recur later in most instances. Several developed secondary syphilitic lesions before the disease was recognized. In all there was consequent delay in the diagnosis of syphilis: disappearance of surface treponemes rendered dark field diagnosis difficult, if not impossible, so that in many cases positive serologic tests had to be awaited. However, none of the cases could be construed as examples of relapsing syphilis in the sense that the patients had passed through the secondary stage and then developed mucocutaneous or visceral forms of relapse. Hough[15] has recalled the high incidence of neurologic and other types of relapse observed in the early days of arsphenamine therapy, when one or two doses were believed curative, and he has suggested that a similar situation may arise from inadequate treatment with penicillin. This possibility must be kept in mind, particularly in patients treated for gonococcic urethritis, the doses of penicillin being grossly inadequate for syphilis.

A febrile reaction occurred in 4 cases (5, 6, 7 and 8), and this was interpreted as a systemic Herxheimer reaction due to the treponemicidal action of penicillin. Herxheimer reactions are common in early syphilis with both arsenic and penicillin, and they may be systemic and/or focal. The focal symptoms and signs consist of edema of the chancre and adjacent tissues; pain and swelling in enlarged regional lymph nodes, usually the inguinals, and exaggeration of secondary syphilitic lesions. Of a series of 53 patients with primary syphilis treated at this hospital[16] with 20,000 units of penicillin intramuscularly at three hour intervals, 8 had no fever; 27 had fever from 100 to 102 F., and 18 had temperatures higher than 102 F. Thus, 85 per cent had a febrile Herxheimer reaction, which appeared four to eight hours after the initial dose of penicillin. The high incidence in this group is attributed in part to the careful search that was made for fever, by the recording of rectal temperature at two hour intervals. With the purified penicillin now available, fever as a toxic manifestation, due to contained pyrogens, is extremely rare. We have not observed it among hundreds of patients treated with penicillin for uncomplicated gonococcic urethritis.

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[14] Moore, J. E.: The Modern Treatment of Syphilis,[2] p. 10.

[15] Hough, W. H.: Intensive Treatment of Syphilis, Correspondence, J. A. M. A. **124:** 188 (Jan. 15) 1944.

There can be little doubt, from the evidence presented in this paper, that subcurative doses of penicillin modify the course of early syphilis. The modification evinced itself in several different ways. There appeared to be prolongation of the incubation period in 3 cases, in 1 the infection was symptomless and in the remaining 11 there was suppression and concealment of the syphilitic lesions. The tendency was to make the disease insusceptible of diagnosis for a longer period than is the rule when it pursues its natural biologic course. Consequently there was greater opportunity for dissemination of the disease, and reduced probability for cure of the patient. However, the fact of greatest importance, which cannot be overemphasized, is shown clearly in the table. In all 15 cases the diagnosis of syphilis was definitely established less than ninety days after penicillin treatment of gonococcic urethritis. It would seem, therefore, that clinical and serologic observation for ninety days from the date of treatment would suffice to detect all but the most exceptional cases of syphilis: this is the present policy of the United States Army.[17]

Every patient treated for gonococcic urethritis should be informed that a concomitant early syphilitic infection may coexist; the patient should be urged to report immediately in the event that a genital lesion or cutaneous eruption appears and should be warned against sexual intercourse until the observation period is completed. The management of the case should include (1) a careful pretreatment inspection for lesions, with repeated dark field examinations, (2) a serologic test for syphilis at the first visit, repeated at least monthly for ninety days, and (3) the recording of the temperature at two hour intervals, during the penicillin therapy, to detect a low grade febrile Herxheimer reaction.

SUMMARY

Of 15 patients treated with 50,000 or 100,000 units of penicillin for gonococcic urethritis while suffering from a concomitant early syphilitic infection, the penicillin appeared to prolong the incubation period of primary syphilis in 3, the syphilitic lesions were suppressed and concealed in 8 and a febrile Herxheimer reaction occurred on the day of penicillin therapy in 4.

In every case the diagnosis of syphilis was proved by demonstration of treponemes in the lesions, or repeatedly positive serologic tests, in less than ninety days after penicillin was administered: on the basis of this, clinical and serologic observation for three months is recommended for all patients.

Clinical Notes, Suggestions and New Instruments

RECOVERY FROM PULMONARY MONILIASIS FOLLOWING SERUM THERAPY

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This case of severe pulmonary moniliasis is presented because of the unusual immunologic findings and because of the dramatic recovery which followed the administration of immune serum.

REPORT OF CASE

History.—A. T., a white woman aged 44, married, a housewife, was admitted to Duke Hospital on July 8, 1940 with the chief complaints of malaise, fatigue, cough and loss of weight for the preceding two months. The family history was negative except that one sister had bronchial asthma.

Two years before admission the patient had been ill for five months with symptoms of malaise, fever and cough productive of one-half cupful of white foamy sputum. During her illness she had lost 10 pounds (4.5 Kg.) in weight and was told by her physician that she had a pulmonary infection. She recovered satisfactorily on iodide therapy.

The present illness began two months before admission with the development of symptoms similar to those of her previous illness, namely malaise, fatigue and a weight loss of 15 pounds (6.8 Kg.). She again had a cough, productive of 1 tablespoon of mucoid, odorless sputum daily. She noted afternoon temperature elevation as high as 39.4 C. (103 F.) but had no frank chills, chest pain, hemoptyses or night sweats. Iodides were administered by her physician but had to be discontinued because of the appearance of a pustular eruption on the face. Three weeks prior to admission she was admitted to another hospital, where she received, over a ten day period, a course of one of the sulfonamides with some subjective improvement.

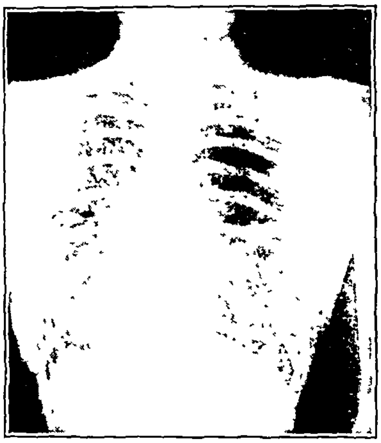

Fig. 1.—Appearance on admission, July 8, 1940.

Physical Examination.—The temperature was 38 C. (100.6 F.), pulse rate 92, respiratory rate 22 and blood pressure 120/70. The patient was emaciated and appeared to be chronically ill but in no acute cardiorespiratory distress. There was a brownish pigmented area over the nose extending to the cheeks, producing a "butterfly" appearance. The tongue was somewhat smooth and reddened, with marginal papillary atrophy. The chest was asthenic, with dulness at the left base and increased tactile and vocal fremitus over this area. Coarse moist rales were present throughout both lung fields. There was no cyanosis and no clubbing of the fingers. The remainder of the examination was normal.

Accessory Clinical Findings.—The hemoglobin was 9.3 Gm., or 60 per cent (Sahli), and the erythrocyte count was 3,920,000 per cubic millimeter. The white blood cell count was 19,000 per cubic millimeter and the erythrocyte sedimentation rate was 31 mm. per hour corrected. Examination of the fresh blood showed anisocytosis, poikilocytosis and the presence of both

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[16] Leifer, William: The Treatment of Early Syphilis with Penicillin, to be published.

[17] Treatment of Gonorrhea, United States War Department, Technical Bulletin (TB Med 96), Washington, D. C., Government Printing Office, 1944.

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A part of the cost of this investigation was borne by a grant from the John and Mary R. Markle Foundation.

microcytes and macrocytes. The blood Wassermann and Kahn tests were negative. Urine and stool examinations showed no abnormalities.

Candida albicans was isolated from the sputum on numerous occasions. Repeated examinations of concentrated sputum and gastric washings were negative for tubercle bacilli, and guinea pigs inoculated with concentrated sputum remained well. Skin tests were negative to old tuberculin in all dilutions up to 1 mg.

Fluoroscopic and x-ray examinations of the chest showed diffuse densities throughout both lung fields, most likely due to infiltration, with lesions at the left base somewhat coalesced. The x-ray findings were interpreted as being consistent with a diagnosis of a diffuse bronchomycotic infection (fig. 1).

A skin test with a vaccine prepared from a stock culture of candida albicans was negative, and no agglutinins for the fungus could be demonstrated in the serum of the patient.

Course in the Hospital.—The patient continued to be very ill with anorexia, temperature spiking daily to 40 C. (104 F.) and cough productive of white mucoid sputum, which varied in amount from 1 tablespoon to ½ cup every twenty-four hours. The patient was given all the accessory vitamins, iron and various antianemic measures. Intravenous glucose and parenteral vitamins were administered as supportive measures.

Since the patient was known to be sensitive to iodides, gentian violet therapy was begun on July 18, 1940, when she received 2 mg. per kilogram of body weight of the drug intravenously. Subsequently she was given two injections of gentian violet 3 mg. per kilogram and six injections of 4 mg. per kilogram, the last on August 28. After each of the injections the patient complained of substernal oppression, dyspnea and a sensation of choking and smothering, and exhibited decided cyanosis. Gentian violet therapy had to be discontinued because of the symptoms cited and the thrombosis of all accessible veins.

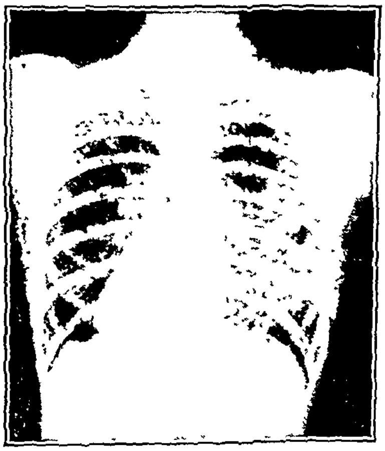

Fig. 2.—Progress of disease, September 16.

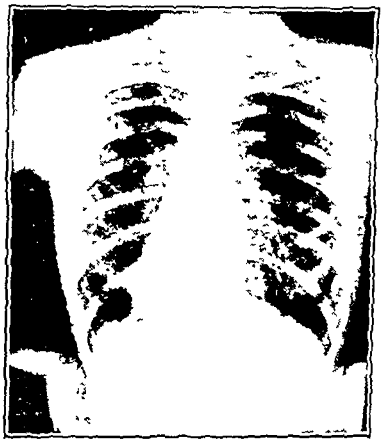

Fig. 3.—Remarkable clearing with immune serum therapy, October 22.

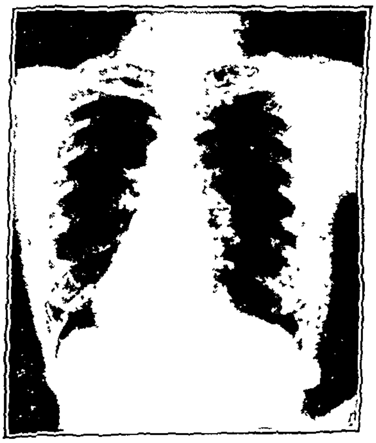

Fig. 4.—Complete clearing, March 31, 1941.

An x-ray of the chest made on September 16 showed a considerable increase in the extent and density of the widespread pulmonary lesions (fig. 2).

The patient coughed up a small amount of bright red blood on August 22. Because of failure to improve on gentian violet therapy, it was decided to try iodides. After negative skin tests and patch tests to potassium iodide, the drug was given orally in an initial dose of 20 drops and the dosage increased 10 drops a day. The drug had to be discontinued on the fifth day because of a severe ioderma involving the face. A transfusion of 500 cc. of citrated blood was given without reaction on September 11.

The patient was again skin tested with an autogenous vaccine of Candida albicans isolated from her sputum, and the reaction was negative. No agglutinins for the fungus could be found in the patient's serum.

Because of a previous experience with a patient suffering from North American blastomycosis[1] who had the same immunologic findings, i. e. negative skin test to Blastomyces vaccine, a negative complement fixation test and a positive immediate reaction to an anti-Blastomyces rabbit serum, it was decided to test this patient with the serum of a rabbit which had been previously immunized with Candida albicans. Injection of 0.1 cc. of the anti-Candida albicans rabbit serum resulted in the formation of a wheal with pseudopodia surrounded by a 5 cm. zone of erythema. Hypersensitivity to rabbit serum was excluded by injection of 0.1 cc. of normal rabbit serum, to which there was no reaction.

The immunologic findings were interpreted as indicating that the patient was flooded with an excess of the fungus antigen, which inhibited both the agglutination reaction and the skin test to the vaccine. The findings suggested also that the administration of immune serum might neutralize the hypothecated excess antigen, permitting the patient's own immune mechanism to become effective.

The patient was given immune anti-Candida albicans rabbit serum subcutaneously, beginning with 0.1 cc. of a 1 : 10 dilution, and the dose was increased by 0.1 cc. daily until a dose of 0.9 cc. was reached. The desensitization series was repeated twice (beginning October 3 and completed October 26). Following serum therapy there was a total remission of all subjective symptoms. An x-ray of the chest taken on October 22 showed remarkable clearing (fig. 3).

On October 24 an agglutination test showed agglutinins for Candida albicans to be present in a 1 : 80 dilution of serum. The skin test to vaccine became slightly positive. Retesting with immune rabbit serum gave a slight reaction, which was no greater than that of the normal rabbit serum control. This was interpreted as a negative immune serum test.

The patient was discharged on Nov. 2, 1940 feeling well and entirely symptom free.

Follow-Up.—X-rays of the chest made on Dec. 12, 1940 and on March 3, 1941 were interpreted as essentially normal (fig. 4). The skin test to Candida albicans has remained negative but the agglutinins were still positive in a 1 : 80 dilution. An electrocardiogram showed no abnormalities.

Subsequently the patient developed mild asthmatic episodes and was found to be sensitive to extracts of Alternaria and Hormodendrum and to oidiomycin. At the present time her asthma is being controlled by desensitization with extracts of these fungi. Several recent cultures from her nose and throat have shown no growth of Candida albicans.

SUMMARY

A patient with severe pulmonary moniliasis showed evidence of an excess of antigen in the tissue and absence of circulating antibodies. She failed to improve with the usual methods of treatment but made a dramatic recovery after the administration of small amounts of immune rabbit serum.

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[1] Martin, D. S., and Jones, R. R., Jr.: Systemic Blastomycosis, Surgery 10: 939-946 (Dec.) 1941.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. Howard A. Carter, Secretary.

RADIUM

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Radium as such does not have any therapeutic value. The tissue reactions which follow "radium treatment" are the result of the absorption of energy by the tissue from the radiations emitted by radium and its disintegration products.

Radium is a member of one of the three radioactive series which occur in nature. The atoms of a radioactive element eventually change into atoms of another element, and this change, or disintegration, is produced by the original atom losing mass and energy. The lost mass and energy are in one or more of three forms of radiations, called the alpha rays, beta rays and gamma rays. If all of the energy emitted by 1 Gm. of radium in equilibrium with its disintegration products should be converted into heat, it would amount to about 140 calories each hour; 92 per cent of this energy is from alpha rays, 3.2 per cent from beta rays and 4.8 per cent from gamma rays.

The alpha rays are nuclei of helium atoms which travel at a velocity which may be as high as a tenth of the velocity of light. A helium nucleus has a mass of 4 atomic units and has 2 units of positive electric charge; hence the emission of an alpha ray by an atom reduces its atomic weight 4 units and its atomic number (number of units of positive charge in the nucleus) 2 units. Although the energy of an alpha ray is quite large, it cannot travel far through solid materials; the greatest distance it can penetrate tissue is about 0.1 mm., and through materials of greater density the distance would be even less. The wall of all the ordinary containers used to hold radium or other radioactive materials is thick enough to stop all the alpha rays. Hence, when a radioactive material is enclosed in an applicator during treatment, alpha radiation cannot produce any therapeutic effect.

Beta rays are electrons which travel at a velocity which may be as high as 99 per cent of the velocity of light. An electron has a mass of approximately one two thousandth of an atomic unit of mass and has 1 unit of negative electric charge; hence the emission of a beta ray by an atom does not produce any significant change in its atomic weight, but it increases its atomic number 1 unit. The average energy of a beta ray is of the order of a tenth of the energy of alpha rays. Because of their greater velocity, smaller mass and smaller electric charge, beta rays are much more penetrating than alpha rays. Beta rays can travel through tissue a distance of approximately 10 mm. A thickness of metal sufficient to stop all the beta rays is often called a beta-ray filter, and for the commonly used metals these thicknesses are 0.5 mm. of platinum or gold, 1 mm. of silver or lead, or 2 mm. of brass, monel metal or steel.

Gamma rays are electromagnetic radiations, similar to, but of shorter wavelength than, most roentgen rays, ultraviolet light, visible radiations, radio waves and the like. Of course they, like all electromagnetic radiations, travel at the same velocity as light. The emission of a gamma ray has no effect on the atomic weight or atomic number of an atom, and gamma rays are generally emitted by the same atoms that emit beta rays. In general, the energy of the gamma rays is a little greater than that of beta rays, and they are much more penetrating than either the alpha or beta radiations. One cm. of tissue reduces the intensity of the gamma rays about 5 per cent, a half inch of lead reduces their intensity about 50 per cent, and some of these rays can be detected through 6 inches (15 cm.) or more of lead. Since most applicators containing radioactive materials are enclosed in metal of sufficient thickness to absorb all the beta rays, the therapeutic effect produced by radium treatment is due to the action of gamma radiation on the tissue.

It is not possible to predict when any particular atom of a radioactive element is going to disintegrate, but a definite percentage of the atoms present at the beginning of a period of time will disintegrate during that period. For each radioactive element the rate of disintegration is different and characteristic. Hence the period of time which elapses before half of the atoms disintegrate is called the "half-life period"; this also is characteristic of each radioactive element. The rate of disintegration of an element is not affected by chemical combination, extremes of heat, cold, pressure or vacuum, or by anything which can be done to the element. In the accompanying table is a list of that part of the uranium radioactive series which is of interest to the radiologist; in it will be found the elements in their order of disintegration, the radiations emitted, the half-life periods and other data.

Naturally Occurring Radioactive Elements Which Are Used in Radiology

Element	Atomic Number	Atomic Weight	Physical State	Radiations	Half-Life Period
Radium	88	226	Solid	Alpha	1,590 years
Radon	86	222	Gas	Alpha	3.82 days
Radium A	84	218	Solid	Alpha	3.05 minutes
Radium B	82	214	Solid	Beta and gamma	26.8 minutes
Radium C	83	214	Solid	Beta and gamma	19.7 minutes

If a preparation of pure radium (radium being used as a specific example, although any radioactive element could be used as well) is sealed in a tube, the tube immediately contains other elements; the amounts of these elements will increase for a time, and the amount of radium present will gradually decrease. However, since radium disintegrates very slowly, the amount present will remain essentially constant for many years, and hence the number of atoms of radium disintegrating in any period of time—or, which is the same thing, the number of atoms of radon formed in any period of time—will remain essentially constant for many years. The amount of radon present gradually increases until the number of atoms disintegrating in a period of time is just equal to the number of atoms being formed (number of atoms of radium disintegrating) in the same period. From then on, the amount of radon present decreases as the amount of radium present decreases; the ratio of the amounts of all those present is always the same, and radon is then said to be in equilibrium with radium. In a similar manner, equilibrium eventually will be established between all succeeding members of the radioactive series. Between radium and radium C, equilibrium is established in about two months, but it takes only about four hours for equilibrium to be established between radon and radium C. The amount of radon in equilibrium with 1 Gm. of radium is called a curie, and smaller amounts are measured in millicuries or microcuries.

Radium is commercially available only in the form of a salt, generally the sulfate, bromide or chloride, and generally a small percentage of the total weight of the preparation is the corresponding barium salt. However, the preparation is described as containing a certain weight of radium, which is the actual weight of the radium element present and not the total weight of the preparation. The actual amount of radium present is determined by comparing the amount of gamma radiation emitted by the preparation (after equilibrium has been established with radium C) with the gamma radiation emitted by a preparation whose radium content is known, or by measuring the rate at which radon is formed. Similarly, the amount of radon contained in a tube is generally measured, after equilibrium has been established with radium C, by comparing the gamma ray emission with that from a tube of radium, since the intensity of the gamma radiation from 1 mc. of radon is the same as the intensity of the gamma radiation from 1 mg. of radium, when the two are in equilibrium with radium C. Most commonly the intensity of the gamma radiation is measured with an electroscope or other suitable instrument by determining the amount of ionization produced in a given volume of air.

Since, in ordinary radium treatment, only the beta and gamma radiations are used, radium B and radium C are the only elements actually needed, because they are the source of these radiations. However, they disintegrate rapidly, and radium or radon is needed as a constant source for supplying radium B. An applicator containing radium will maintain nearly a constant amount of radium B and radium C for many years, while an applicator containing radon decreases in strength approximately a sixth every twenty-four hours, or a half every 3.82 days, and does not have any therapeutic value after about a month because all the radon and radium B and radium C have disintegrated. Since radon is the only gas in the disintegration series, it can be separated rather easily from the rest of the series, and applicators containing radon are frequently used instead of applicators containing radium; so-called "radium therapy" may be given with either type of applicator.

THERAPY

Treatment with radium can do more harm than good. To determine the best method of applying radium and the most suitable dose in each case requires training and judgment, and the best results are obtained only by physicians who have had extended experience. For these reasons, responsibility for treatment of this kind should be limited to qualified specialists.

TECHNIC

Ordinary radium therapy can conveniently be divided into three general types of application: (1) external, (2) intracavitary and (3) interstitial.

In external irradiation the radium applicator is either in contact with the skin or at some distance from the skin. Plaques containing radium, radon bulbs, tubes of radium or radon, and radium bombs are the common types of applicators used for external irradiation.

Plaque applicators usually contain from 5 to 25 mg. of radium embedded in the surface of a glazed material having an area of from 1 to 8 square centimeters. The filter in plaques is very small, seldom more than 0.1 mm. of monel metal; hence most of the beta rays may be used. Plaques are generally placed in contact with the lesion to be treated and are used for surface lesions when irradiation is to be confined to a shallow depth. Although gamma rays also are emitted, their effect on deeper tissue will be very slight during the time the beta rays produce a much greater effect on the superficial tissue.

Radon bulbs are thin walled bulbs of glass, generally less than a centimeter in diameter, containing radon. Since the filtration of the glass wall is very slight, most of the beta rays may be used. Sometimes these bulbs are used instead of radium plaques.

Tubes containing radium or radon generally have walls thick enough to absorb all the beta rays, so that only gamma rays may be used. Walls thicker than a "beta ray filter" make a mechanically stronger tube but reduce the intensity of the radiation. The "active length" (length of radioactive material) is generally about 1 to 2 cm., the overall length of the tubes from 1.5 to 3 cm., the outside diameter from 3 to 7 mm., and the wall thickness 0.5 to 2 mm. platinum equivalent (platinum or sufficient thickness of other materials to give a filtering effect equivalent to that of platinum). Often a few millimeters of rubber, bakelite, wood or similar organic filter is used between the tube and the tissue to absorb the secondary radiation from the tubes. Tubes generally contain from 5 to 100 mg. of radium, or up to several hundred millicuries of radon. Tubes are sometimes placed in contact with the skin, but more commonly they are separated a few centimeters from the skin.

Radium bombs usually contain from 1 to 10 Gm. of radium, which is enclosed in a large block of lead (or other dense metal) with an opening through which radiation can emerge. Filtration is approximately the same as for tubes, but the distance between the radium and the skin usually varies from about 10 to 40 cm.

In intracavitary irradiation the applicators are placed in a natural cavity of the body, usually in order to bring the applicator closer to the lesion to be treated. The most common applicators used are the same radium and radon tubes which are used for external application. The tubes are often enclosed in rubber or similar material to absorb some of the secondary radiation from the tubes and to increase the distance between the tube and the tissue.

In interstitial irradiation the applicators are inserted into the tissue to be treated. Radium or radon needles, containing from 1 to 10 mg. of radium or mc. of radon, with filtration of from 0.3 to 0.5 mm. of gold or platinum are often used. After the desired dose has been given, the needles are removed. Small tubes containing radon are often used, but these are never removed; they contain such an amount of radon, usually from 0.25 to 2.5 mc., that the desired dose will be delivered while all the radon disintegrates. These are commonly called permanent implants, radon seeds, gold implants or gold seeds and generally are made of pure gold having a filter of 0.3 to 0.5 mm., an outside diameter of from 0.75 to 1.15 mm. and a length of from 2 to 6 mm. They also may be made of platinum.

During recent years, in dealing with resistant tumors, the tendency has been to eliminate most or all of the beta rays by using as a filter 0.5 mm. of platinum or an equivalent thickness of some other metal. The reason for this is that beta rays have a decidedly caustic or necrotic effect at short range, that is, on the tissues immediately adjacent to the radioactive substance. This is commonly accompanied by severe pain. Elimination of beta rays by increasing the filtration prevents this necrotic effect and concomitant pain. Lead as a filter is generally employed only to treat superficial lesions.

The dose of radiation delivered to the tissue—the amount of energy absorbed by the tissue from the radiation—depends on the amount of radium or radon used, the length of time of application, the arrangement of the applicators, the filtration and the distance between the source and the tissue. The biologic effect produced by irradiation depends on the dose and many other physical and biologic factors, including the rate at which the energy is absorbed, the volume of tissue irradiated and the dosage distribution throughout that volume, the kind of tissue, the phase of the life cycle of the cells, the blood supply and many other factors.

DOSAGE

The dose is generally expressed in milligram-hours or millicurie-hours, the former being used for radium salts, the latter for radon; the two terms describe practically the same quantity. In ordinary use, however, there will be a slight discrepancy in their values if the change in value of the radon during the time of treatment is not taken into account. If the average value of radon is used, this discrepancy is practically eliminated for any normal period of treatment. To describe a treatment completely, the amount of radium or radon, the time of application, the filtration, the distance from the lesion and the type of applicator should be given. Confusion in the literature with regard to dosage is due to lack of care in recording these points; the older writers based the dose on the product of the period of application by the quantity of crystallized radium bromide ($RaBr_2 + 2H_2O$), which contains 53.6 per cent of radium element, instead of on the product of the period of application multiplied by the quantity of radium element; and this resulted in an error of about + 40 per cent. Regaud of France described the dose, when radon is used, as the quantity of radon destroyed. This he defined as the difference between the amount of radon in the applicator at the beginning and at the end of the period of irradiation. For a radium applicator this is equal to the milligram-hours multiplied by the hourly rate of decay of radon, which is 0.0075. These methods of expressing the dose are slowly being superseded by a simpler method in which the dose is stated in roentgens (the unit originally adopted for expressing roentgen dosage).

The roentgen (usually represented by r) is a measure of the amount of energy absorbed from the radiation; hence it takes into account the amount of radium or radon, time, arrangement, distance and filter (the dosage rate, at a distance of 1 cm. from a point source of 1 mg. of radium filtered by 0.5 mm. of platinum, is approximately 8.4 roentgens each hour). When the entire dose is given within a few hours, about 1,000 roentgens of gamma radiation is required to produce an erythema of the skin. Among advanced workers there is an increasing tendency to express radium dosage in roentgens, but at the present time methods of measurement have not yet been perfected and simplified sufficiently to make this a general rule.

The maximal safe dose of radiation which a person may receive day after day, called the "tolerance dose," is generally considered to be about 0.1 roentgen each day. The dose received by persons working with radioactive materials should be measured by having them carry on their person photographic film or suitable dosage measuring instruments. When the dose which they receive is near or more than the tolerance dose, added protection should be provided. It is advisable also to have frequent studies made of the blood of the personnel, for some of the earliest tissue changes produced by irradiation are indicated by changes in the blood.

BIOLOGIC CONSIDERATION

The action of radium rays on tumors depends on the kind of cells of which the tumor is chiefly composed. Each variety of cell in the body has a specific range of sensitiveness to the rays, and the sensitiveness of neoplasms corresponds closely to that of the normal cells from which the tumor is derived. The sensitiveness of cells appears to depend chiefly on their life cycle or mitotic activity. Radium rays appear to act mainly on the genetic elements (chromatin material of the nucleus) of the cells and thus may cause cellular activity to be inhibited or to be completely arrested and the cells to be injured or to disintegrate completely, the rate of effect varying with each variety of cell and with the age of the cells.

The primary biologic effect of irradiation is one of cell injury. When the degree of injury is small, the tissue eventually may be able to recover from it. Hence, in general, it is undesirable to irradiate normal tissue, and precautions should be taken to irradiate as little normal tissue as possible while treating a lesion. Precautions must be taken to protect the personnel working with radioactive materials from receiving enough radiation to produce permanent tissue damage in their own bodies.

As already mentioned, the action of radium rays on pathologic lesions depends on the sensitiveness of the particular varieties of cells affected. This applies to benign, inflammatory and malignant processes. The leukocytes, especially the lymphocytes, and polymorphonuclear and eosinophilic leukocytes, are the most sensitive of all human cells. Next in sensitiveness come the mucus producing cells in the basal epithelium lining the acini of the salivary glands, pulmonary bronchi, stomach and intestine. The basal epithelial cells (spermatogonia) of the testis and ovary come third in the order of sensitiveness and account for the susceptibility to irradiation of the respective genital glands. Young connective tissue cells are comparatively sensitive, and mature connective tissue cells are comparatively insensitive to irradiation. Less and less sensitive, or more and more resistant, to the direct action of the rays are cartilage cells, muscle cells, bone cells, fat cells and finally nerve cells. In the eye the two most sensitive structures are the conjunctiva and the epithelium of the crystalline lens. Doses of radiation insufficient to cause an inflammatory reaction of the eyelids are not likely to cause the conjunctiva or the lens to react. Doses sufficient to produce conjunctivitis may lead to the formation of cataract months or years later, especially in children. As far as tumors are concerned, those composed chiefly of lymphocytes are extremely sensitive and retrogress rapidly after exposure to the rays. Tumors derived from the spermatogonial cells of the testis (seminoma or embryonal carcinoma) also are sensitive, though less sensitive than growths incidental to Hodgkin's disease, lymphosarcoma or lymphatic leukemia. Among bone tumors, diffuse endothelioma (Ewing) is quite sensitive, chondrosarcoma moderately sensitive and osteogenic sarcoma quite resistant to irradiation.

INTRAVENOUS AND ORAL ADMINISTRATION

When taken internally over a certain period of time, solutions of radium may have a deleterious effect on the blood corpuscles. Under these circumstances the radioactive element is eliminated chiefly through the bowel and kidneys, but a small proportion is disseminated through the body and finally lodges in bones, the radioactivity of which may therefore increase considerably. In time these radioactive deposits may lead to bone sarcoma; therefore solutions of radium, when used to treat internal diseases, should be used with caution and only for a limited time.

When solutions containing radon are taken internally, the emanation is rapidly lost from the body, a large proportion escaping during the process of drinking and the remainder being eliminated through the bowel.

Solutions of radium chloride, and radon (radium emanation) contained in drinking water, constitute the chief methods of oral administration; intravenously, radium chloride solution is generally used. The evidence available on the effect of solutions containing radium or radon (radium emanation) in the treatment of disease is in general not well controlled and such solutions, therefore, are of doubtful value. Certainly there is no basis for the use of radium or radon (radium emanation) in conditions such as anemia, habitual constipation, glycosuria, sexual impotence, glandular inefficiency or for purposes of rejuvenation in general. It is noteworthy that many of the conditions in which radon is recommended are chronic conditions in which any new method of treatment may seem temporarily beneficial.

The daily administration of radon (radium emanation) has been reported to give beneficial results in various conditions, including infections, acute articular rheumatism, endocarditis, chronic arthritis, neuritis, hypertension, thromboangiitis obliterans and arthritis deformans. Many of the so-called emanators and activators on the market impart such small amounts of radon (radium emanation) to the water which contains them that their effect, if any, is probably psychic. Commercial exploiters of mineral springs have made much of the radioactive content of the water and have attributed therapeutic benefit to this factor. In most cases the radioactivity of spring water is very small and probably has nothing to do with the therapeutic effects noted.

Solutions of radium chloride are given in doses of from 10 to 50 micrograms. Radioactive substances introduced intravenously are eliminated largely through the bowel and kidneys, and excessive doses may produce degeneration of renal cells and hyperemia and hemorrhage of the mucosa of the colon.

From an examination of the available evidence it would appear that the value of the internal use of radium solutions or of water containing radon, in chronic arthritis, gout, neuritis and high blood pressure, has not been demonstrated by controlled clinical evidence; in spite of many years of trial, acceptable evidence has not become available, and until better evidence becomes available the Council on Physical Medicine has decided not to accept generators for the production of water charged with radon or radium solutions intended for intravenous use.

RESULTS OF TREATMENT IN PATHOLOGIC CONDITIONS

Radium treatment is often effective in myelogenous and lymphatic leukemia. In the former, topical application of radium over the region corresponding to the enlarged spleen usually causes the organ to diminish in size rapidly, and the leukocytes undergo a corresponding reduction in number. In some cases, irradiation of the spleen alone is not sufficient and the long bones also must be treated. Irradiation of the long bones or of the lymph nodes in lymphatic leukemia is best carried out with roentgen rays rather than radium. In many cases a substantial improvement in the general condition accompanies the reduction in size of the spleen and superficial nodes and the fall in the leukocyte count. Acute leukemia does not respond well to irradiation, but in the more chronic forms irradiation usually leads to prolonged remission of symptoms, although treatment may have to be repeated at varying intervals from time to time. When the spleen has been irradiated many times, it tends to become fibrous and radium gradually loses its effect. In cases of severe anemia, exposure to radium should be repeated with caution; otherwise there may be danger of increasing the anemia. Radium is applied for varying lengths of time over the spleen and superficial lymphatic enlargements only or in conjunction with irradiation of the long bones. Usually a total exposure of successive areas for twenty-four hours at one time is sufficient. This may be repeated at intervals of one week or longer, depending on the exact dose given. During the past few years, phosphorus, when made artificially radioactive by a cyclotron and when given intravenously, has been found to yield results which are superior to those obtained by radium applied to the surface of the body.

In menorrhagia and metrorrhagia, which are often concomitants of fibroid disease of the uterus, radium therapy is frequently of real value. It is accomplished best by intrauterine application, although sometimes the radium may be placed in the posterior vaginal fornix and supplemented with distance screening over the fundus. In young women the dose should be controlled so that a premature menopause does not occur. A universal tube applicator containing 25 to 50 mg. of radium in the form of radium sulfate, filtered through 0.5 mm. of silver and 2 mm. of gum rubber, and placed in the uterine cavity for fourteen hours, will bring on amenorrhea in most cases. If necessary, the treatment may be repeated after an interval of six months. In young women, in whom permanent amenorrhea is to be avoided, a fourth to a half of this dose is often sufficient.

Lymphadenoma, lymphosarcoma and mediastinal and abdominal growths of a sarcomatous nature are often reduced in size by the application of radium, with concomitant improvement in the general condition.

The sensitiveness of malignant tumors of bone varies according to the susceptibility of the essential cells of the tumor. Thus diffuse endothelioma, otherwise known as endothelial myeloma, is quite sensitive, and the rate of regression of this tumor corresponds to that of the chronic form of lymphosarcoma and Hodgkin's disease. Chondrosarcoma is rather resistant, its rate of regression depending on the proportion of young cartilage cells in the tumor. True osteogenic sarcoma is comparatively resistant to irradiation. Some of these tumors may undergo a measure of regression after exposure to radium, but the regression is seldom pronounced and practically never complete.

Carcinoma involving certain organs responds well to the application of radium. In carcinoma (not adenocarcinoma) of the uterine cervix, the results obtained by expert workers are at least equal to those which follow surgical intervention. Carcinoma of the thyroid gland also is comparatively sensitive. On the contrary, adenocarcinoma, wherever situated, tends to resist irradiation. Carcinoma of the gastrointestinal tract is seldom greatly influenced by radium treatment.

Radium treatment is of considerable value in bringing on shrinking and fibrosis in tuberculous adenitis.

Improvement has been noted in certain skin diseases when treated with radium rays; for example, lichenified eczema, epithelioma and keratosis, psoriasis, xanthoma, localized mycosis fungoides and fibroma.

Lupus vulgaris, when all other treatment has failed, is sometimes favorably influenced by radium.

In cavernous nevus the course of the disease is favorably influenced. The treatment is lengthy and tedious. Overexposure should be avoided, especially about the face, for it brings about scarring. Much care and experience are needed in order to obtain good results.

The removal of warts and papillomas and the treatment of pyogenic granulomas by radium are generally successful. If the exposure is timed properly, involution occurs in from three to four weeks.

Good results have also been reported in the treatment of conditions which often follow injuries, such as keloids, painful scars and fibrous adhesions.

Moles, especially of the pigmented variety, should not be irradiated. They can be destroyed by means of high frequency current or they can be excised surgically.

For many years certain concerns which deal in radium and its emanation products have made it possible for any physician to rent radium or radon and to use it in the treatment of some of their cases. This service was probably provided to meet a considerable demand on the part of physicians who did not realize that the use of these radioactive agents by physicians who have not had special training and experience is fraught with considerable danger, and the results of treatment under these conditions are not likely to be as good as they should be. For this reason the attitude of the Council on Physical Medicine has been and still is that the rental of radium or radon to physicians who have not had special training and experience should be discouraged.

Mental Changes.—Coma is a state of complete unresponsiveness to the environment. The patient's reactions are limited to elemental reflexes, and even some of these are impaired. Semicoma is a condition in which there is responsiveness to some of the elemental mental functions, such as calls by name, reacting to noise and reacting to a visual threat. There is no significant defect in the elemental reflexes. Stupor is a condition of greater awareness where the patient has no defect in elemental reflexes, responds to elemental mental functions and, in addition, reacts to verbal commands, having an ability to execute simple things, such as shutting the eyes and sticking out the tongue. Confusion is a state in which there is only a mild disturbance in the state of consciousness. The elemental reflexes, elemental mental functions and reactions to simple commands are usually intact. These patients present chiefly orientation difficulties.—Wortis, S. Barnard; Herman, Morris, and London, Jack: Mental Changes in Patients with Subdural Hematomas, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 355).

The following articles have been accepted:

DUREX PRODUCTS, INC., NEW YORK

Lactikol Creme: A water dispersible nonfatty stearic acid and glyceryl monostearate cream, having a p_H of 4.9, prepared from the formula:

	Per Cent
Stearic acid	15.00
Glyceryl monostearate	7.50
Glycerin	8.00
Glyceryl monoricinoleate	1.50
Sodium lauryl sulfate	0.50
Lactic acid	0.50
Perfume	0 07
Water sufficient to make	100.00

Actions and Uses.—(See article Contraceptive Jellies and Creams.)

Dosage.—5 cc.

Lactikol Jelly: A water soluble jelly formed from tragacanth, karaya and acacia, having a p_H of 4.15, prepared from the formula:

	Per Cent
Tragacanth	2.70
Karaya	1.00
Acacia	1.00
Lactic acid	1.50
Glycerin	16.00
Glyceryl monoricinoleate	1.00
Sodium lauryl sulfate	0.20
Butyl ester of parahydroxy benzoic acid	0.02
Oxyquinolin sulfate	0.05
Perfume	0.04
Water sufficient to make	100.00

Actions and Uses.—(See article Contraceptive Jellies and Creams.)

Dosage.—5 cc.

SYRINGE APPLICATORS FOR CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 357).

The following articles have been accepted:

DUREX PRODUCTS, INC., NEW YORK

Lactikol Plunger Applicator: A transparent plastic tube threaded at the blunt intravaginal end to screw onto the tubes of Lactikol Creme and Jelly to permit filling by compression of the tube. The full capacity is 5 cc., the recommended dose.

Lactikol Metri-Dose Applicator: A transparent glass tube graduated to permit delivery of from 5 to 8 cc., slightly constricted at the intravaginal end to permit filling, and fitted at the distal end with a rubber compression bulb with central wire spring device to permit adjustment of the volume of jelly or cream to be delivered.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1945, p. 610).

The following additional dosage form has been accepted:

SCHIEFFELIN & CO., NEW YORK

Tablets Thiamine Hydrochloride: 3 mg.

ASCORBIC ACID (See New and Nonofficial Remedies, 1945, p. 622).

The following additional dosage form has been accepted:

SCHIEFFELIN & CO., NEW YORK

Tablets Ascorbic Acid: 100 mg.

HEXESTROL (See New and Nonofficial Remedies, 1945, p. 435).

The following dosage form has been accepted:

ORTHO PRODUCTS, INC., LINDEN, N. J.

Tablets Hexestrol: 1 mg. and 3 mg.

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SATURDAY, JANUARY 26, 1946

VACCINATION FOR INFLUENZA

Recently Salk and his colleagues[1] reported the efficacy of vaccination against influenza, using a preparation which contained larger quantities of virus than usually employed, with the purpose of producing a higher degree of immunity. More than 2,000 persons at the Ypsilanti State Hospital in Michigan were studied. At the Eloise Hospital Infirmary 5,737 persons were involved. At the Ypsilanti State Hospital alternate persons in certain wards who were selected for study received a subcutaneous injection of 1 cc. of the virus vaccine or a similar inoculation of control material. One thousand and thirty-five were given the vaccine and 1,051 received the control inoculation. This took place on Dec. 21 and 22, 1942. Between Jan. 5 and 12, 1943 2,879 received the vaccine and 2,858 received control material at the Eloise Hospital and Infirmary. Blood for serologic study was obtained from approximately 10 per cent of the vaccinated group at the time of vaccination and again two weeks later. The vaccination raised the antibody titers of the majority beyond the range of the group prior to vaccination. Thus, prior to inoculation the type A antibody titers higher than 256 were found in only 6 per cent of patients, whereas 71 per cent had titers of this level or more after vaccination. Similarly, type B antibody titers of 256 or higher were found in only 10 per cent before inoculation but in 78 per cent postvaccinally.

A special effort was made to determine the duration of increased antibody titer. Bleedings were carried out at intervals of two weeks, four months and one year. For the type A virus the results could be summarized as follows: Antibody titers of 256 or more were found in 15 per cent of the group before vaccination, in 83 per cent two weeks later, in 69 per cent four months later and in 66 per cent at the end of a year. For the type B virus similar levels of antibody titers were found in 6 per cent before vaccination and in 82 per cent, 70 per cent and 57 per cent at the corresponding intervals after vaccination.

Nearly a year after vaccination an epidemic of influenza A occurred in the general population adjacent to the Ypsilanti State Hospital. Several of the ward attendants acquired influenza about two weeks before the disease became manifest among the inmates. When the vaccination study was begun not all wards had been included, and in those in which vaccinations were done only one half received the virus vaccine, the remainder having been inoculated with control material. In the intervening year the changes in composition in the wards were comparatively slight. Consequently a program of case finding was instituted. Influenza was frequent in some of the wards; in these wards the population was essentially unvaccinated. In the group of "vaccinated" wards, about 40 per cent of the residents of which had been vaccinated, the incidence of influenza seemed to be definitely limited either because cases did not occur or because those which did appeared sporadically.

The investigators presented evidence also that the vaccine used remained stable for more than a year when stored in a refrigerator. This was shown by mouse protection tests and the capacity to induce a rise in antibody level in human beings similar to that obtained by fresh vaccine.

The laboratory evidence of prolonged antibody rise following influenza vaccination, the appearance of an epidemic of influenza about a year after inoculation and the epidemiologic pattern taken by the disease strongly suggest that vaccination as long as a year old may prevent or at least limit outbreaks which might have been severe in certain segregated institutional groups. Further progress in the preparation of potent and long lasting vaccines and in technics of administration are doubtless impending.

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[1] Salk, Jonas E.; Pearson, Harold E.; Brown, Philip N.; Smyth, Charley J., and Francis, Thomas, Jr.: Immunization Against Influenza, with Observations During an Epidemic of Influenza One Year After Vaccination, Am. J. Hyg. 42:307 (Nov.) 1945.

NUTRITIONAL ANEMIAS IN CHILDREN

The significance of nutritional factors in the etiology of the anemias of children has been reemphasized in recent investigations. The importance of dietary protein,[1] of the B vitamins[1] (possibly folic acid in particular) and of iron[2] has been stressed in current studies. In one severely anemic infant with an allergy to cow's milk, for example, the administration of food containing "protein" in the form of amino acids[1] was followed by a prompt recovery. Subsequent studies will probably confirm the therapeutic need and value of additional dietary protein in some chronic cases of anemia in children.

Investigations of the identity of the B vitamin or B vitamins involved in the nutritional anemias of infancy have not proceeded far enough to permit conclusions. However, the administration of liver preparations[1] produced a dramatic recovery from the anemia in one child thus treated. This factor may be folic acid and thus identical with that which apparently benefits certain types of macrocytic anemias in the adult.[3] Further studies of this important practical problem will be awaited with interest.

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[1] Bass, M. H.: Deficiency Anemia in Infants, Am. J. Dis. Child. 67:341 (May) 1944.

[2] Abbott, O. D., and Ahmann, C. F.: Iron Deficiency Anemia in Children, Am. J. Dis. Child. 58:811 (Oct.) 1939.

As is well known, a lack of iron may also be involved in the etiology of the nutritional anemias of children. This problem seems to be somewhat more acute in certain areas of the country where "endemic anemia" from iron deficiency has been described.[2] This observation has been confirmed in more recent studies of hemoglobin values in rural school children in Florida.[4] Of a total of 2,205 children from 6 to 18 years of age examined, 42.3 per cent were distinctly anemic, having hemoglobin values ranging from 3.6 to 11.4 Gm. per hundred cubic centimeters, 35.8 per cent were subnormal (11.4 to 13.6 Gm. per hundred cubic centimeters) and only 21.9 per cent were considered normal (above 13.5 Gm. per hundred cubic centimeters). A lack of dietary iron was shown to be the primary deficiency in these cases, since rapid hemoglobin regenerations followed the administration of iron salts.

These observations again emphasize the importance of proper nutrition, especially with respect to protein, the B vitamins and iron, in maintaining normal hemoglobin formation in the growing child.

HAZARD OF ANOXIA IN NITROUS OXIDE ANESTHESIA

Anesthesia by inhalation of nitrous oxide gas presents a number of advantages such as the prompt and pleasant induction of sleep and the rapid elimination from the body. The gas has not been found to have a toxic effect on any tissue. The single serious imperfection of nitrous oxide is its lack of potency. When given with a concentration of oxygen found in air, nitrous oxide will not produce a degree of narcosis in many persons that meets the requirements of surgical anesthesia. To overcome this difficulty McKesson in 1911 introduced the principle of fractional rebreathing into gas anesthesia and a new technic in which induction of anesthesia was accomplished with undiluted nitrous oxide and the saturation technic. When saturation is practiced, 100 per cent nitrous oxide is continued to the point of profound asphyxia and respiratory arrest. At this point, if the pulse becomes irregular or slow, oxygen is given under pressure sufficient to inflate the lungs. After the single inflation of lungs with oxygen, an anesthetic mixture is provided to maintain narcosis and the necessary degree of muscle relaxation. If in the course of the operation this mixture proves inadequate to maintain relaxation, the asphyxial procedure is repeated as a secondary saturation.

McQuiston and his co-workers[1] maintain that a mixture of 20 per cent oxygen and 80 per cent nitrous oxide may be used without causing serious anoxemia. In their analyses of blood gases in patients who received nitrous oxide anesthesia they found that any appreciable reduction in oxygen below 20 per cent may become extremely dangerous to the patient. In all their experiments, when the proportion of oxygen in the inspired gases was below 13.7 per cent, the arterial oxygen tensions were in the range of extreme asphyxia, 30 mm. of mercury. These experiments make it obvious that the administration of nitrous oxide is often accompanied by anoxemia and that the degree of anesthesia is more dependent on the reduction of oxygen than on an increase of concentration of nitrous oxide.

The important contribution of Courville,[2] based on a study of 13 cases 9 of which terminated fatally, demonstrates most emphatically that nitrous oxide-oxygen anesthesia may cause serious and even fatal results. A patient may die during the anesthesia with absence of any pathologic lesions at necropsy sufficient to account for death. The cause of death in this type of case has been ascribed to status thymicolymphaticus, idiosyncrasy or anoxemic depression of the respiratory center. In a second group described by him, the patient may survive for hours or months and then succumb. Cases corresponding to this classification are numerous, and most anesthetists with wide experience are familiar with one or more in their own or in the practices of others. Immediate nervous manifestations usually consist of generalized convulsive seizures, muscular rigidity and persistent coma, at times terminating fatally with signs of "decerebrate rigidity." Delayed symptoms may occur in the form of a psychosis, the parkinsonian symptom complex or disturbance of special sensation, particularly in the form of a partial or complete amaurosis. The patient may recover entirely after an anoxemic episode, may survive for a variable period with residual symptoms or may die within a few days. Similar cases were reported by Lowenberg, Waggoner and Zbinder, O'Brien and Steegman, Stewart and others. The only conclusion to be drawn from the cases reviewed is that the consequences of nitrous oxide anesthesia are due to the accompanying anoxia. Certain contributory conditions have been recognized in the production of anoxemia, such as pulmonary lesions, diminished cardiac reserve and hyperthermia.

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3. Spies, T. D.; Vilter, C. F., and Koch, M. B.: South. M. J. **38**: 707 (Nov.) 1945.

4. Abbott, O. D.; Townsend, Ruth O., and Ahmann, C. F.: Hemoglobin Values for 2,205 Rural School Children in Florida, Am. J. Dis. Child. **69**: 346 (June) 1945.

1. McQuiston, W. O.; Cullen, S. C., and Cook, Evelyn V.: Arterial Oxygen Tension with Nitrous Oxide Anesthesia, Anesthesiology **4**: 145 (March) 1943.

2. Courville, C. B.: Asphyxia as a Consequence of Nitrous Oxide Anesthesia, Medicine **15**: 129 (May) 1936.

Barach and Rovenstine[3] stress that, except in the presence of these specific conditions, methods are not available for distinguishing between persons who may suffer severely from brief bouts of anoxia and those who will recover fully after prolonged oxygen want. They believe that the mortality and morbidity from nitrous oxide-oxygen anesthesia as practiced in offices is much greater than is generally known. Protection of the public against death or permanent impairment of mental functioning from anoxia demands widespread dissemination of the fact that asphyxia of even very short duration must be regarded as a grave hazard to the great majority of persons. They propose that nitrous oxide-oxygen anesthesia should not be administered with an oxygen percentage of less than 20. Should anesthesia with a 20 per cent oxygen-80 per cent nitrous oxide mixture prove not sufficiently deep, other technics should be used rather than resort to asphyxia or even so-called moderate anoxia. Cylinders containing 80 per cent nitrous oxide and 20 per cent oxygen will provide an unvarying concentration of these gases with a cylinder pressure of 700 pounds. They feel that the increased cost of such mixtures should not be made the basis of permitting a practice that is dangerous as well as unphysiologic.

Current Comment

HOSPITAL RESIDENCIES UNDER THE G. I. BILL

For some time a subcommittee of the Committee on Postwar Medical Service has been seeking a clarification of the educational provisions of the G. I. Bill of Rights as they might apply to hospital residencies, which are being sought by physician veterans in great numbers. Elsewhere in this issue is an explanation of the manner in which this law will operate in the case of residencies, whether or not the hospital is affiliated with a medical school. Important questions raised repeatedly have been: Is a hospital offering an acceptable residency program eligible to participate? Are physician veterans eligible for subsistence benefits while pursuing such a course of study? May a veteran commence his residency training while on terminal leave? These questions are now answered in the affirmative, with certain qualifications fully described in this statement, which was approved by the Central Office of the Veterans Administration. It can serve as a useful guide to hospitals and physician veterans alike, since all necessary procedures are described in detail. The modified provisions of the new law, passed in December 1945, are included. Certain of these were advocated to Congress by the Committee on Postwar Medical Service and its subcommittee. It is now not necessary for a physician veteran of any age to prove that his education was interrupted to become eligible; more satisfactory arrangements for tuition payments for short courses are provided; tuition and subsistence benefits will not be charged against the veteran's bonus, should one be voted later by Congress; and the subsistence benefits are increased.

PRESCRIPTION WRITING

The best medical treatment is that fitted to the individual patient. Drug therapy, highly significant in most medical treatment, is secured by the prescription. As Sollmann aptly says, a prescription is "an order for medicine sent by a physician to a pharmacist." Some of the practical requirements for writing an effective and correct prescription are often neglected. The instructions for the pharmacist and patient must be legible and intelligible; this is why English is now preferred to Latin. The prescriber should use correct, descriptive names for the ingredients and not just their trade names; such description insures fewer misunderstandings. If an ingredient is official or otherwise open to manufacture by several firms, a firm name should be placed adjacent to the ingredient if the physician wishes to show his confidence in any one manufacturer; otherwise any brand may be used to fill the prescription. The use of English abbreviations and numbers as designations for drugs should be avoided. Complex mixtures should not be ordered if simple ones will suffice. Unrelated substances such as purgatives and hypnotics are not properly included in a single prescription. They are best prescribed separately and timed in their administration to be most effective. The physician should be mindful of the frequency with which prescriptions are refilled without his knowledge. Thus he may limit the number of doses to the actual needs of the patient and state specifically on the prescription whether it can be refilled and, if so, how often. The importance of such directions, for example when barbituric acid compounds are prescribed, is obvious. Of course the pharmacist bears the responsibility of filling the prescription; when he is in doubt concerning the ingredients or directions, it is his moral responsibility to call the prescribing physician; to do otherwise invites disastrous results.

ADVANCES IN MALARIAL RESEARCH

A report in the January 4 issue of *Science* of the Board for the Coordination of Malarial Studies[1] lists a number of significant advances in the study of malaria. Studies on immunity in the avian infections have given information on the cross immunization which obtains with different species of parasites. The studies on immune response of human subjects to malarial antigen have been disappointing either in the prevention or modification of the disease or in the production of complement fixing antibodies which might be useful in differentiating between a latent infection and a cure in vivax malaria. A great number of chemical compounds have been investigated for antimalarial activity in various avian infections and in human malaria. Among the practical advances resulting from these studies may be mentioned: 1. The development of better methods for the use of quinacrine (atabrine) in the suppression and treatment of malaria, which led to the demonstration that this compound is superior to quinine. 2. Development of compounds superior to quinacrine. Among these are several members of the 4-aminoquinoline series. In this group SN7618, 7-chloro-4-(4-diethylamino-1-methylbutylamino) quinoline, has received the most extensive study, both in civilian and in military establishments. This compound is an effective suppressive when administered no more frequently than once a week in a well tolerated dose. It will also cause an abrupt termination of the clinical attack of vivax malaria and will cure falciparum malaria when administered for only one or two days. It does not discolor the skin, as does quinacrine, nor does it give the disagreeable gastrointestinal symptoms which are sometimes seen with the administration of quinacrine. 3. The exploration of the 8-aminoquinolines. The field of investigation of suppressive drugs has been extended, the major emphasis being focused on the study of the 8-aminoquinolines with the hope of discovering a nontoxic curative agent. This line of investigation received impetus from published reports of British investigation of pamaquin (plasmochin) in vivax malaria. Curative action of pamaquin was demonstrated in vivax malaria due to both domestic and Southwest Pacific strains of P. vixax.

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[3] *Barach, A. L., and Rovenstine, E. A.:* Hazard of Anoxia During Nitrous Oxide Anesthesia, Anesthesiology **6:** 449 (Sept.) 1945.

[1] Board for the Coordination of Malarial Studies: Wartime Research in Malaria, Science **103:** 8 (Jan. 4) 1946.

VITAMIN CONTENT OF HUMAN MILK

Since milk is the basic food of the infant and many babies are raised on formulas containing cow's milk adjusted to resemble human milk, a knowledge of the complete chemical composition of both types of milk is desirable. The content of all the grosser constituents such as fat, carbohydrate, protein and minerals is well known. Recently Macy and her associates[1] have added to our knowledge of the vitamin content of human milk. In this series of studies the newer microbiologic and chemical procedures were used to determine the concentrations of vitamin A, ascorbic acid, nicotinic acid, biotin, pantothenic acid, thiamine and riboflavin in twenty-four hour samples of human milk. This period of collection was adopted to remove the possibility of diurnal variations. For this study a number of pregnant and lactating women were either given special diets of high vitamin content or allowed to choose their own diets. It was found that the vitamin content of the milk from those women who choose their own diet was lower than those on the planned diets, although the differences were small. Using the values for the vitamin content of human milk which were obtained by the Detroit group, Maynard and his co-workers[2] made comparisons with the vitamin content of cow's milk. Human milk was found to be higher than bovine milk in regard to ascorbic acid, nicotinic acid and inositol. Cow's milk was found to contain more thiamine, riboflavin, pyridoxine, biotin and pantothenic acid than human milk. A factor to be taken into consideration when comparing these values is that the normal commercial processing and delivery of cow's milk may cause considerable loss of the riboflavin and ascorbic acid activity.

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[1] Macy, Icie G.; Williams, Harold H.; Pratt, J. P., and Hamil, Brenton M.: Human Milk Studies, Am. J. Dis. Child. **70:** 135 (Sept.) 1945.

[2] Lawrence, John M.; Herrinton, B. L., and Maynard, L. A.: Human Milk Studies, Am. J. Dis. Child. **70:** 193 (Sept.) 1945.

PULMONARY INSTILLATION OF PENICILLIN IODIZED OIL

Bryson,[1] Barach[2] and others have shown that penicillin aerosol penetrates the lungs and that respiratory penicillin may be recovered from the urine. The aerosol method of pulmonary therapy, however, necessitates four or five inhalations daily to maintain effective quantities of penicillin in the lungs. Radiographic control of the location of the therapy is impossible. Romansky and his associates[3] of the Walter Reed General Hospital therefore tested the feasibility of pulmonary instillations of penicillin in iodized oil. Calcium penicillin was thoroughly blended with 40 per cent iodized oil, the resulting mixture containing 1,500 Oxford units per cubic centimeter. Stability tests showed that penicillin remains suspended in the mixture and does not settle out or deteriorate even after sixty days storage at room, incubator or refrigerator temperature. Under radiographic control from 1 to 3 cc. of this mixture was injected through the trachea into the bronchi of 8 rabbits. Blood levels varying from 0.039 to 1.25 Oxford units per cubic centimeter were found during the next two hours, the titer depending on the amount of the penicillin injected. Gross and microscopic studies of the lungs and other organs two months later showed no abnormalities that could be attributed to this form of therapy. Ten patients with severe saccular bronchiectasis and 2 with pulmonary abscess were selected for clinical trial. The lesions in all 12 cases were confined to a single lobe. After preliminary cocainization of the posterior pharynx, from 7 to 10 cc. of penicillin iodized oil was introduced into the diseased lobe of each patient, fluoroscopic visualization furnishing an accurate check of the localization of the injected material. Immediate or subsequent discomfort due to the mixture was not observed. In most cases, assayable levels of penicillin were found in the blood during the first three hours after the instillation. In all patients, penicillin continued to be excreted in the urine for at least twenty-four hours. In certain cases a gradual reduction in the amount of sputum to approximately 50 per cent of the original amount occurred by the seventh day. Romansky believes that the chances of curing far advanced bronchiectasis, lung abscesses or any other type of chronic pulmonary suppuration by this method are remote. He is convinced, however, that there is a distinct possibility that the bacterial flora of diseased lungs may be altered by such local therapy so as to make subsequent surgical intervention safer. Further studies of therapeutic possibilities are in progress.

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[1] Bryson, Vernon; Sansome, Eva, and Laskin, Sidney: Science **100:** 33 (July 14) 1944.

[2] Barach, A. L.; Silberstein, F. H.; Oppenheimer, Enid T.; Hunter, Thomas, and Soroka, Max. Ann. Int. Med. **22:** 485 (April) 1945.

[3] Romansky, M. J.; Dugan, D. J., and Rittman, G. E.: Science **102:** 255 (Sept. 7) 1945.

MEDICINE AND THE WAR

HOSPITAL RESIDENCIES UNDER THE G. I. BILL

This statement by a subcommittee on veterans' affairs of the Committee on Postwar Medical Service was compiled for the information of approved residency hospitals and physician veterans by that subcommittee, the Council on Medical Education and Hospitals and the Bureau of Legal Medicine and Legislation of the American Medical Association. The provisions of the amended Servicemen's Readjustment Act are included. The statement has been approved for publication by the Central Office of the Veterans Administration.

1. *Eligibility of Hospitals.*—On Nov. 9, 1945 the chairman of the subcommittee on veterans' affairs of the Committee on Postwar Medical Service of the American Medical Association submitted for the consideration of the Administrator of Veterans' Affairs the question as to whether payment of tuition can be made to hospitals which furnish physician veterans advanced hospital education beyond internship. In the letter it was stated that the instruction to be furnished to the physician veterans should be regarded as an educational program, as distinguished from "on the job training," for the reason that it involves organized teaching on rounds and in conferences as well as classroom conferences dealing with autopsy findings, medical problems in the hospital, x-ray diagnosis, laboratory studies and other organized educational features which definitely stamp this training as education. It was also stated that such a program of instruction entails expenditures by the hospitals which would be unnecessary if patient care alone were involved and that the services of additional physician teachers would be required in order to provide the necessary instruction.

In reply to this letter from the chairman of the subcommittee of the Committee on Postwar Medical Service, the Administrator of Veterans' Affairs ruled that ". . . the training contemplated in connection with residencies and fellowships is not 'training on the job' . . . but is in the nature of institutional training." This applies to all acceptable residency hospitals, whether or not they are affiliated with a medical school. The ruling means that otherwise qualified physician veterans pursuing the contemplated training in connection with residencies or fellowships are eligible for subsistence benefits and that approved hospitals are eligible to apply for tuition remuneration. (See section 6).

2. *State Approval of Hospitals.*—Although the Veterans Administrator has established the general principle that hospitals conducting acceptable residencies are eligible for participation under the bill, it is still necessary for each residency hospital to seek approval as an individual institution from the appropriate state agency. The law requires the governor of each state to designate an authority in each state to approve educational institutions. In most states this agency is the Office of Education, by whatever name it may be called. A revised list of these agencies for all the states is given in section 10. No hospital can participate unless it is approved by the state agency; veterans receive no subsistence allowance while serving as residents in a hospital not so approved.

It is the responsibility of these state agencies to see that only institutions offering education of a high quality be certified for participation, as a protection to the veteran.

3. *Eligibility of Veterans.*—Honorably discharged physician veterans of this war are eligible for educational benefits for a period of time equal to one year plus the duration of their active duty since Sept. 16, 1940, and prior to the termination of the war, not including time spent on active duty in the A. S. T. or Navy V-12 programs, and not to exceed a total period of four years. It is no longer necessary for the veteran to demonstrate that his training was interrupted by the war, regardless of his age when entering active duty. The period of training must be commenced within four years of discharge, or the termination of the war, whichever is later, and completed within the nine year limitation. In no case may the period of education exceed four years.

4. *Establishment of Eligibility.*—It is necessary for the veteran to establish his eligibility formally. This he does by filing an application on Veterans Administration Rehabilitation form 1950 at the regional office (see section 11) of the Veterans Administration. A certified copy of his discharge or a photostatic copy of his discharge should accompany the application. From the regional office the veteran receives a Certificate of Eligibility and Entitlement (Veterans Administration form 1953), which indicates the duration of the training to which he is entitled. This certificate must be endorsed by the approved hospital and forwarded to the regional office of the Veterans Administration. Benefits cannot be paid unless and until this process is complete. It is important for the veteran to make certain that the hospital has been approved by the appropriate state agency (see sections 2 and 10). It is also to the veteran's interest to make certain whether the hospital is also approved by appropriate nongovernmental approving agencies, lest the work done proves later to be useless for such special purposes as certification by one of the American Boards in the medical specialties.

5. *Subsistence Allowance.*—The veteran then receives a monthly subsistence check for $65 if without dependents or $90 per month if he has a dependent or dependents. These payments will not be made during terminal leave. Public Law 268, approved Dec. 28, 1945, repeals section 1505 Public Law 346 reading in part as follows: "In the event there shall hereafter be authorized any allowance in the nature of adjusted compensation, any benefits received by, or paid for, any veteran under this act shall be charged against and deducted from such adjusted compensation."

6. *Payments to Hospitals.*—The law and Veterans Administration regulations make special provisions for payments to educational institutions having no established tuition fee. These apply to approved residency hospitals, which rarely if ever have an established tuition fee; in fact, some participating hospitals will provide a modest stipend to the veteran and may even provide facilities for living in the hospital as part of his training, in which case the other provisions of this statement still apply. Regarding payments to hospitals, there are four alternatives available to hospitals:

a. The hospital may request no payments; this does not affect subsistence payments to veterans.

b. The hospital may have a regularly established tuition fee, which it may request from the regional office of the Veterans Administration for its resident veterans; this would usually be limited to some university or medical school hospitals offering fellowship or graduate work including residency training.

c. Hospitals may avail themselves of the regulations in Veterans Administration instruction No. 6, Title II, Public Law 346, amplified in conferences with the Veterans Administration. Any approved educational institution that has no established tuition fee or whose established tuition is considered inadequate compensation may charge for each veteran enrolled in a full time course as much as $15 per month, $45 per quarter or $60 per semester. In residency hospitals the length of the course of instruction is fifty-two weeks (including vacation), which does not fall within the Veterans Administration definition of an ordinary school year, as a period of thirty to thirty-eight weeks. Residency hospitals selecting this basis of compensation would be paid $15 per month, or $180 for a course of fifty-two weeks.

This alternative will probably apply to most hospitals desiring tuition remuneration.

d. A hospital that has no established tuition or that considers its established tuition charges to be inadequate compensation and desires payments in excess of that described in section 6 (c) may, in accordance with the provisions of Veterans Administration instruction No. 6, be paid fair and reasonable compensation not exceeding the estimated cost of teaching personnel and supplies for instruction. Hospitals desiring compensation on this basis will be required to submit through the manager of the regional office to the Assistant Administrator for Vocational Rehabilitation and Education, Veterans Administration, Washington, D. C., information on cost of teaching personnel and supplies for the courses of instruction. Information will also be required as to the value of services rendered by the residents and fellows to the institution. The value of such services must be offset under this basis of compensation against any costs for teaching personnel and supplies incurred in giving the courses in question. Medical school hospitals especially may wish to follow this alternative for fellowships involving residency training, when there is no established tuition fee for such work.

Note that it is only in connection with section 6 (d) that it is necessary for the hospital finally to deal directly with the Central Office of the Veterans Administration in Washington. In all other negotiations described in this statement the hospital as well as the veteran deal with local authorities: the regional office of the Veterans Administration or, initially, with the state agency which approves educational institutions.

7. *Responsibility of Hospitals.*—It is the responsibility of every participating hospital to maintain an educational program of high quality, fulfilling established and generally accepted standards for such work. No hospital is justified in embarking on or continuing residency programs unless these are acceptable not only under the law but professionally as well.

8. *Terminal Leave Period.*—An eligible physician veteran may embark on any educational program within the provisions of the act during his period of terminal leave. During this period of time tuition payments can be made to the approved educational institution to the same extent that they may be made after the medical officer's discharge. However, subsistence payments will not be paid to the veteran during the terminal leave period.

9. *Short Intensive Postgraduate or Training Courses of Less than Thirty Weeks.*—Institutions providing review and refresher courses of less than thirty weeks, having regularly established fees, must be approved by the appropriate state agency (see section 10) and must arrange for tuition payments with the regional offices of the Veterans Administration (see section 11). The veteran must establish his eligibility for this work as described in section 4. The fee can be charged, provided the cost is not in excess of the rate of $500 for a full time course for an ordinary school year. If the customary charges are in excess of the rate of $500 for an ordinary school year the Veterans Administration must find that the agreed cost of such courses is reasonable and fair. However, for review and refresher courses there will be charged against the veteran's time period of eligibility the proportion of an ordinary school year which the cost of the course bears to $500. For example, if an eligible veteran elects a two month course for which $250 is paid, there will be charged against the veteran's period of eligibility for training, not two months, but a half of an ordinary school year, since $250 is half of $500.

By taking such a review or refresher course the veteran does not forfeit the right for further education, within the limits of the period of eligibility for instruction for which he has been certified.

10. *State Approving Agencies.*—The state agencies to which hospitals should apply for approval as educational institutions are:

Alabama, Montgomery. Department of Education, Mr. E. B. Norton.
Arizona, Phoenix. Department of Public Instruction, Mr. E. D. Ring.
Arkansas, Little Rock. Department of Education, Mr. Ralph B. Jones.
California, Sacramento. Department of Education, Mr. Robert R. Hartzell.
Colorado, Denver. Governor's Advisory Committee on Veterans' Education and Training, Mr. Craig P. Minear.
Connecticut, Hartford. Department of Education, Mr. John E. Nichols.
Delaware, Dover. Board of Education, Dr. H. V. Holloway.
District of Columbia, Washington. Board of Education, Mr. Paul Eddy.
Georgia, Atlanta. Department of Veterans' Education, Capt. F. A. Sams.
Idaho, Boise. Department of Education, Mr. G. C. Sullivan.
Illinois, Springfield. Office of Public Instruction, Mr. Vernon L. Nickell.
Indiana, Indianapolis. Department of Public Instruction, Dr. Clement T. Malan.
Iowa, Des Moines. Department of Public Instruction, Miss Jessie M. Parker.
Kansas, Manhattan. Committee on Institutions for Veteran-Training, Dr. F. D. Farrell.
Kentucky, Frankfort. Department of Education, Dr. R. H. Woods.
Louisiana, Baton Rouge. Department of Education, Mr. Charles B. Manning.
Maine, Augusta. Department of Education, Mr. Harry V. Gilson.
Maryland, Baltimore. Department of Education, Mr. Thomas G. Pullen Jr.
Massachusetts, Boston. Department of Education, Mr. Julius E. Warren.
Michigan, Lansing. Department of Education, Dr. Eugene B. Elliott.
Minnesota, St. Paul. Department of Education, Mr. Dean M. Schweickhard.
Mississippi, Jackson. Department of Education.
Missouri, Jefferson City. Department of Education.
Montana, Helena. Department of Public Instruction, Miss Elizabeth Ireland.
Nebraska, Lincoln. Department of Public Instruction, Mr. Wayne O. Reed.
Nevada, Carson City. Department of Education, Miss Mildred Bray.
New Hampshire, Concord. Board of Education.
New Jersey, Trenton. Department of Economic Development, Mr. Yorke E. Rhodes.
New Mexico, Santa Fe. State Planning Board, Mr. V. J. Jaeger.
New York, Albany. State Education Department, Mr. John S. Allen.
North Carolina, Raleigh. Department of Public Instruction, Dr. Clyde A. Erwin.
North Dakota, Bismarck. Board of Higher Education, Mr. A. F. Arnason.
Ohio, Columbus. Department of Education.
Oklahoma, Oklahoma City. State Certifying Agency, Mr. Milt Phillips.
Oregon, Salem. Department of Education, Mr. Rex Putnam.
Pennsylvania, Harrisburg. Department of Public Instruction, Mr. Paul E. Witmeyer.
Rhode Island, Providence. Department of Education, Dr. James F. Rockett.
South Carolina, Columbia. Department of Education, Mr. W. A. Schiffley.
South Dakota, Pierre. Department of Public Instruction, Mr. J. F. Hines.
Tennessee, Nashville. Department of Education, Mr. Burgin E. Dossett.
Texas, Austin. State Committee for Veterans' Training, Mr. A. O. Willman.
Utah, Salt Lake City. Department of Public Instruction, Mr. E. Allen Bateman.
Vermont, Montpelier. Department of Education, Mr. Ralph E. Noble.
Virginia, Richmond. Board of Education, Dr. J. L. Blair Buck.
Washington, Olympia. Department of Public Instruction, Miss Pearl A. Wanamaker.
West Virginia, Charleston. Department of Education, Mr. W. W. Trent.
Wisconsin, Madison. Veterans' Recognition Board, Mr. Walter B. Senty.
Wyoming, Cheyenne. Department of Education, Esther L. Anderson.
Alaska, Juneau. Department of Education, Dr. James C. Ryan.
Hawaii, Honolulu. Department of Public Instruction, Mr. Orrin W. Robinson.
Panama Canal Zone. Office of the Panama Canal, Mr. B. F. Burdick, Washington, D. C.
Puerto Rico, San Juan. Department of Education, Mr. Jose H. Gallardo.
Virgin Islands, Charlotte Amalie, St. Thomas. Acting Governor of Virgin Islands, Hon. Morris F. DeCastro.

11. *Regional Veterans' Offices.*—The regional offices of the Veterans Administration and veterans' centers having regional office activities are listed here with the name of the manager of the regional office. It is highly important that each participating hospital become well acquainted with its own regional office, its manager and its policies and procedures. It is to this office that the hospital transmits the endorsed Certificate of Eligibility and Entitlement of the resident veteran and presents its claim for remuneration. It is from this office that the hospital and the veteran receive payments.

Alabama, Montgomery. Mr. Middleton E. Head.
Arizona, Tucson. Col. William T. Haraway.
Arkansas, Little Rock. Mr. James A. Winn.
California, Los Angeles, Col. R. A. Bringham; San Francisco, Col. James G. Donnelly.
Colorado, Denver. Mr. A. D. Borden.
Connecticut, Hartford. Mr. Myer Schwolsky.

District of Columbia, Washington. Mr. Howard F. Dickensheets.
Florida, Bay Pines. Mr. M. Bryson.
Georgia, Atlanta. Mr. J. M. Slaton Jr.
Idaho, Boise. Mr. C. H. Hudelson.
Illinois, Hines. Mr. Charles G. Beck.
Indiana, Indianapolis. Mr. B. C. Moore.
Iowa, Des Moines. Mr. William B. Nugent.
Kansas, Wichita. Mr. Leonard N. Sowards.
Kentucky, Lexington. Mr. Harry W. Farmer.
Louisiana, New Orleans. Mr. Frank Martinez Jr.
Maine, Togus. Mr. M. L. Stoddard.
Maryland, Baltimore. Mr. William L. Limburg.
Massachusetts, Boston. Gen. William J. Blake.
Michigan, Dearborn. Mr. Guy F. Palmer.
Minnesota, Minneapolis. Mr. C. D. Hibbard.
Mississippi, Jackson. Mr. W. S. Shipman.
Missouri, Kansas City, Mr. John A. Brody; St. Louis, Mr. Edward J. Wieland.
Montana, Fort Harrison. Dr. Herbert C. Watts.
Nebraska, Lincoln. Mr. E. R. Benke.
Nevada, Reno. Mr. Edward F. Reed.
New Hampshire, Manchester. Mr. James J. Doyle.
New Jersey, Lyons. Lieut. Col. Harold E. Foster.
New Mexico, Albuquerque. Mr. David K. Dalager.
New York, Batavia, Mr. C. F. Sargent; New York, Mr. E. B. Dunkelberger.
North Carolina, Fayetteville. Mr. James S. Pittman.
North Dakota, Fargo. Mr. C. T. Hoverson.
Ohio, Brecksville, Gen. William L. Marlin; Dayton, Mr. John H. Ale.
Oklahoma, Muskogee. Mr. Polk T. Lunquest.
Oregon, Portland. Col. Paul I. Carter.
Pennsylvania, Philadelphia, Mr. H. J. Crosson; Pittsburgh, Mr. Kenneth S. Covey; Wilkes-Barre, Mr. Michael B. Reap.
Rhode Island, Providence. Col. Davis G. Arnold.
South Carolina, Columbia. Mr. S. C. Groeschel.
South Dakota, Sioux Falls. Mr. Charles B. Kaercher.
Tennessee, Murfreesboro. Mr. Sam Jared Jr.
Texas, Waco. Col. Harry Rubin.
Utah, Salt Lake City. Mr. E. A. Littlefield.
Vermont, White River Junction. Mr. Charles L. Jacobs.
Virginia, Roanoke. Col. Edwin W. Jordan.
Washington, Seattle. Mr. O. G. Fairburn.
West Virginia, Huntington. Mr. H. G. Hooks.
Wisconsin, Wood. Mr. Paul G. Froemming.
Wyoming, Cheyenne. Mr. James L. Laughlin.

SUBCOMMITTEE ON VETERANS' AFFAIRS OF THE
COMMITTEE ON POSTWAR MEDICAL SERVICE.
FREDERICK A. COLLER.
J. W. HOLLOWAY JR.
VICTOR JOHNSON.
ALPHONSE M. SCHWITALLA, Chairman.

NAVY

NAVY AWARDS AND COMMENDATIONS

Captain John H. Robbins

The Bronze Star was recently awarded to Capt. John H. Robbins, formerly of Washington, D. C., "for meritorious service in connection with operations against the enemy as force medical officer on the staff of the commander, South Pacific Area and Force, from Feb. 12 to Sept. 26, 1945. During this period Captain Robbins displayed outstanding professional ability in handling the many medical problems which arose in the area. By his initiative and thorough knowledge of medical administration, he maintained an efficient hospital service for the sick and wounded in the South Pacific and from adjacent areas. Through his able supervision of the application of malaria and epidemic control principles, he prevented much loss of manpower from tropical diseases. His leadership and medical skill were in keeping with the highest traditions of the United States Naval Service." Dr. Robbins graduated from Albany Medical College in 1917 and entered the service Feb. 28, 1918.

Commander Hjalmar August Erickson

The Bronze Star was recently awarded to Comdr. Hjalmar August Erickson, Monterey Park, Calif., "for heroic service while attached to the staff of the medical dispensary at Cavite Navy Yard in the the Philippines, during and subsequent to the bombing attack by enemy Japanese forces on Dec. 10, 1941. Although severely wounded when the dispensary received a direct hit, Commander Erickson calmly reorganized the battle dressing station at Porta Vaga Cathedral and, undeterred by the falling of enemy bombs and the resulting fires and explosions, carried on his valiant efforts, administering to over 300 casualties during the afternoon and night without stopping. Through his professional skill and capable leadership many lives were saved, and his indomitable fortitude and unwavering devotion to duty were in keeping with the highest traditions of the United States Naval Service." Dr. Erickson graduated from the College of Medical Evangelists, Los Angeles, in 1923 and entered the service March 14, 1941.

Commander Earle Ellsworth Metcalfe

Comdr. Earle E. Metcalfe, formerly of Washington, D. C., was recently awarded the Bronze Star "for distinguishing himself by meritorious achievement in connection with operations against the enemy during the period May 15, 1945 to Aug. 15, 1945, while serving as senior medical officer of an aircraft carrier. During this period his ship participated in the attack on the islands of Nansei Shoto in support of invasion force, Okinawa, May-June 1945; attack on Tokyo area airfields and on shipping, July 1945; attack on southern Hokkaido airfields, installations and shipping, July 1945; attack on Kure Naval Base and adjoining airfields, July 1945; attack on northern Honshu airfields, August 1945, and attack on Tokyo area airfield, August 1945. He constantly maintained a highly efficient medical department which won the complete confidence of the entire ship's company by its outstanding record of safe recovery for the sick and wounded. His professional skill and able direction of his department in combat operations against the enemy were responsible in a large measure for the maintenance and exceptionally high state of health and morale of the crew and were in keeping with the highest traditions of the United States Naval Service." Dr. Metcalfe graduated from Loyola University School of Medicine, Chicago, in 1936 and entered the service Nov. 11, 1937.

Lieutenant (jg) Charles Arthur Dwyer Jr.

The Bronze Star was recently awarded to Lieut. (jg) Charles Arthur Dwyer Jr., formerly of Houston, Texas, "for meritorious achievement as attending surgeon in the Isolation Department and later as a ward surgeon at the Billibid Hospital for Military Prison Camps, Manila, Philippine Islands, from Oct. 30, 1944 until the recapture of that prison by American forces on Feb. 4, 1945." The citation stated that, "although himself a patient in the hospital, Lieutenant Dwyer voluntarily returned to a duty status and, overcoming severe handicaps to efficient treatment, including miserable living conditions, diet deficiencies and inadequate supplies and equipment, afforded those in the compound full benefit of his surgical skill and excellent critical analysis of each case, laboring long hours to examine as many as 300 patients in the morning and an equal number at evening sick call. Acting also as the activity's admitting officer at a time when all personnel suffered from malnutrition, he carefully considered all applicants for admission and chose the most serious cases to occupy the limited bed space available, basing his individual judgment on the best interests of all. Through his consistently cheerful demeanor, unwavering concern for the welfare of others and extraordinary professional ability, Lieutenant Dwyer contributed immeasurably to the maintenance of morale at Billibid and to the successful functioning of the vital Medical Detachment." Dr. Dwyer graduated from Louisiana State University School of Medicine, New Orleans, in 1939 and entered the service in March 1942.

Lieutenant Commander James S. Vedder

The Silver Star was recently awarded to Lieut. Comdr. James S. Vedder, formerly of Marshfield, Wis., for "gallantry in action" while serving as battalion surgeon of the 27th Marine Regiment during the Iwo Jima campaign. Dr. Vedder graduated from Northwestern University Medical School, Chicago, in 1938 and entered the service Sept. 24, 1942.

ARMY

OBSERVE FOURTH ANNIVERSARY OF O'REILLY GENERAL HOSPITAL

During the past four years more than 16,000 surgical operations have been performed at the O'Reilly General Hospital, Springfield, Mo. The Medical Department Enlisted Technicians School at O'Reilly General Hospital has graduated more than 14,000 technically trained medical corpsmen and, in addition, courses have been conducted for orthopedic mechanics, anesthetists, physical therapy aides, hospital dietitians and x-ray, laboratory and occupational therapy technicians.

At the ceremony celebrating the fourth anniversary of the hospital Commanding General George B. Foster paid high tribute to the officers, nurses, enlisted men and women and the civilians who have served at O'Reilly and publicly acknowledged his gratitude for the loyalty, fidelity, cooperativeness and selfless devotion to duty which they displayed at all times.

NEW DIRECTOR OF OCCUPATIONAL THERAPY DIVISION

Miss H. Elizabeth Messick, former director of occupational therapy for the District of Columbia Health Department, was recently appointed director of the Occupational Therapy Branch, Reconditioning Consultants Division, Office of the Surgeon General, succeeding Mrs. Winifred G. Kahmann, who is returning to her former position as director of occupational therapy at the Indiana University medical center, where she served eighteen years before coming to Washington. Miss Messick served as a member of the Walter Reed staff from 1933 to 1939. In 1939 she organized and developed a department of occupational therapy under the Bureau of Maternal and Child Welfare of the District of Columbia Health Department. She came to the Office of the Surgeon General in 1944, where she was appointed assistant chief of the Occupational Therapy Branch, Reconditioning Consultants Division.

VISIT PACIFIC ARMY HOSPITALS

Brig. Gen. Hugh J. Morgan, director of Medical Consultants Division, and Col. Francis R. Dieuaide, chief of Tropical Disease Treatment Branch, are making an inspection of medical services in the Pacific, Japan and Japanese territory and surveying problems concerned with internal medicine. During a two week stopover in Manila a special study was made of the comparison between patients from Asia suffering starvation and Europe's starvation cases.

Health studies were recently made in Europe by Brig. Gen. James S. Simmons, chief of Preventive Medicine Service, and Col. Thomas B. Turner, director of Civil Public Health and Nutrition.

RECEIVES ITALIAN AWARD

Major Dallas G. Baynton, A. N. C., Chicago, was recently awarded the Cross for War Merit by the Italian government. Major Baynton has been a member of the Army Nurse Corps since 1942.

ARMY AWARDS AND COMMENDATIONS

Lieutenant Colonel William B. McCutcheon

Lieut. Col. William B. McCutcheon, formerly of Durham, N. C., was recently cited for "meritorious service from Aug. 11, 1944 to May 4, 1945. As chief of surgical service of the 101st (U. S.) General Hospital, Lieutenant Colonel McCutcheon's knowledge and skill of surgery contributed in a marked degree to the successful and high professional standards attained in adequately providing for the sick and wounded. Displaying unusual qualities of leadership and untiring devotion to duty, he achieved remarkable results under capacity conditions. The meritorious services rendered by Lieutenant Colonel McCutcheon are in keeping with the high standards of the military service." Dr. McCutcheon graduated from the Medical College of Virginia, Richmond, in 1921 and entered the service May 11, 1942.

Lieutenant Colonel Oscar P. Hampton Jr.

The Legion of Merit was recently awarded to Lieut. Col. Oscar P. Hampton Jr., formerly of University City, Mo., for performance of outstanding services in North Africa and Italy as consultant in orthopedic surgery. The citation reads, in part, "Colonel Hampton early in the Tunisian campaign observed that the prevalent and widely accepted method for the management of battle fractures should be abandoned and more radical but correspondingly more successful procedures substituted therefor. Energetically pursuing this line of development, with the adjuvant use of penicillin during the Italian campaign the surgical management of the compound fracture of warfare was revolutionized. An exponent of complete initial surgery followed by precise reparative surgery, Lieutenant Colonel Hampton extended his teachings on a theaterwide basis, and by precept and demonstration he furthered a program that materially reduced the incidence of the crippling or even fatal infection that so readily converted this common battlefield wound into a major catastrophe." Dr. Hampton graduated from the University of Tennessee College of Medicine, Memphis, in 1928 and entered the service Jan. 10, 1942.

Major Richard V. Ebert

The Bronze Star was recently awarded to Major Richard V. Ebert, formerly of Brookline, Mass., "for meritorious service in connection with military operations as a member of the Medical Service of the 5th General Hospital from May 12, 1942 to May 15, 1944. Major Ebert demonstrated great ingenuity in collaborating with another officer in developing a simple, practical and easily operated transfusion apparatus for field use. This device has proved to be an invaluable contribution to the Medical Department's field equipment and makes whole blood transfusions easily and readily available to the wounded in forward echelons. Major Ebert's device has been of great value to the success of military operations and has saved the lives of countless soldiers." Dr. Ebert graduated from the University of Chicago School of Medicine in 1937 and entered the service Jan. 1, 1942.

Captain Stanley K. Gutelius

The Bronze Star was recently awarded to Capt. Stanley K. Gutelius, formerly of Rochester, N. Y. He was further cited for his initiative, zeal and professional skill necessary to the successful accomplishment of his battalion's missions. "His untiring efforts in caring for the sick and wounded are reflected in the high standard of health and morale maintained in his unit despite weather and obstacles incident to combat." Dr. Gutelius graduated from the University of Michigan Medical School, Ann Arbor, in 1941 and entered the service Sept. 5, 1942.

Captain Carl Milchen

Capt. Carl Milchen, formerly of Blair, Wis., was recently awarded the Bronze Star "for meritorious achievement in connection with military operations against the enemy at Leyte Province and Luzon Island, Philippine Islands, from Oct. 20, 1944 to May 21, 1945." Dr. Milchen graduated from Marquette University School of Medicine, Milwaukee, in 1937 and entered the service Aug. 17, 1942.

Major Meyer Maskin

Major Meyer Maskin, New York, was recently awarded the Bronze Star and Bronze Arrowhead. He served as psychiatrist with the 4th Infantry Division in the European Theater of Operations. Dr. Maskin graduated from Wayne University College of Medicine, Detroit, in 1935 and entered the service May 15, 1942.

Lieutenant Colonel Maurice A. Hardgrove

Lieut. Col. Maurice A. Hardgrove, formerly of Milwaukee, was recently awarded the Legion of Merit for "exceptionally meritorious conduct in the performance of outstanding service." Dr. Hardgrove graduated from Columbia University College of Physicians and Surgeons, New York, in 1928 and entered the service July 2, 1942.

ORGANIZATION SECTION

Postwar Medical Service

MEETING OF DECEMBER 1, 1945

The Committee on Postwar Medical Service was called to order by the Chairman, Dr. Ernest E. Irons, at 10:04 a. m., Saturday, Dec. 1, 1945, in the Board of Trustees Room at American Medical Association Headquarters in Chicago. The following members and liaison members of the committee and guests were present:

Dr. Irvin Abell.
Dr. Arthur W. Allen.
Dr. Louis H. Bauer.
Dr. Walter L. Bierring.
Dr. James R. Bloss.
Dr. Willard Camalier.
Dr. Frederick A. Coller.
Mr. Graham L. Davis.
Capt. William E. Eaton.
Lieut. Col. Bryan C. T. Fenton.
Dr. Ralph Fenton.
Dr. Morris Fishbein.
Dr. Evarts A. Graham.
Lieut. Comdr. G. G. Gross.
Capt. L. M. Harris.
Dr. E. L. Henderson.
Mr. T. A. Hendricks.
Mr. J. W. Holloway Jr.
Dr. Ernest E. Irons.
Dr. Victor Johnson.
Col. B. R. Kirklin.
Dr. Herman L. Kretschmer.
Major Gen. George F. Lull.
Dr. James M. Mason.
Col. Hugo Mella.
Dr. J. J. Moore.
Dr. Howard C. Naffziger.
Dr. James E. Paullin.
Dr. Robert A. Peers.
Lieut. Col. William N. Piper.
Dr. C. W. Roberts.
Alphonse M. Schwitalla, S.J.
Dr. R. L. Sensenich.
Lieut. Col. Rolland B. Sigafoos.
Dr. H. H. Shoulders.
Dr. LeRoy H. Sloan.
Dr. Austin E. Smith.
Miss Mary Switzer.
Dr. Olin West.

SURPLUS MEDICAL AND HOSPITAL SUPPLIES

Father Schwitalla, chairman of the Subcommittee on Surplus Medical and Hospital Supplies, presented a progress report, which, after discussion, was adopted and publication authorized. (The report was published in The Journal Dec. 8, 1945, p. 1033.)

Dr. Camalier stated that the American Dental Association feels that the veteran is not getting what he is entitled to under the law. His association feels that the dental veteran will produce more in the cause of public health and more directly and more quickly than the state and municipal agencies, which, under the law, will have first priority. Under the program being considered the hospitals and dental offices to be established in thousands of communities will take a long time and the surplus dental equipment now available will not be worth anything by the time they are made available. Father Schwitalla stated that he thought the veteran was being given as much preference as could be given him under the existing law.

Dr. Camalier moved that the Committee on Postwar Medical Service go on record as favoring a number 1 priority for medical and dental veterans for obtaining surplus material, whether it requires a liberal interpretation of the regulations or a change in the law. The motion was seconded and an amendment offered providing that regulation No. 14 should be left intact. Action on the motion was postponed until later in the meeting.

EDUCATIONAL INTERNSHIP AND RESIDENCY OPPORTUNITIES FOR MEDICAL OFFICERS

Dr. Johnson presented the following progress report:

> Large numbers of medical officers are seeking residencies especially in surgery. Many of them communicate with the Council on Medical Education and Hospitals and many more with hospitals directly. The following suggestions have been helpful to returning medical officers: First they are urged to seek appointments in hospitals in which they may formerly have carried out some house officer work. Secondly they are urged not to insist that the residency be in a medical school hospital but should be sought in some other approved residency hospital, at least for a time.
>
> The Council on Medical Education and Hospitals has inaugurated a card reporting system by means of which hospitals report vacancies at regular intervals in all fields for which they are approved. This reporting system has been extremely valuable in advising returning medical officers of hospital vacancies.
>
> The Council is attempting to work out with the specialty boards a streamlined system of approving new residencies on a provisional or probationary basis. This should make available more rapidly new residency openings, which are being developed in considerable numbers.
>
> The Selective Service System has made a ruling which will make it possible for medical schools to return to autumn admissions of freshmen classes if they so desire even though the current academic year in the school may end in April. This rule was designed to permit certain medical schools which wish to do so to free all their clinical facilities for the instruction of veterans for a period of three to six months next spring or summer. As far as the Selective Service System and the Navy are concerned, schools may now plan this if they wish. The Army has taken the stand that such deceleration may not take place so long as there are army students in the medical schools. Efforts are being made at acquainting the Army with the importance of making an adjustment similar to that of the Navy and the Selective Service System.
>
> The Procurement and Assignment Service will discontinue the deferment of reserve officers of the Army Specialized Training and Navy V-12 programs beyond a twelve month internship effective April 1, 1946. This should make many more residencies available to returning medical officers.
>
> The demand for reprints of "Continuation Courses for Veteran and Civilian Physicians" has been very great. Nearly a thousand copies are distributed each month in response to requests for this information. The list of continuation courses being offered from Jan. 1 to July 16, 1946 will be published in The Journal Dec. 8, 1945. This list is about 30 per cent longer than for the preceding period. There are more courses of longer duration and more courses being offered by universities and medical schools, and there is a broader geographic distribution.

At the request of Dr. Graham, Dr. Johnson read an excerpt from a directive issued by the Procurement and Assignment Service under date of Nov. 6, 1945, as follows:

> In the interest of adequate distribution of the available supply of veterans, it is expected that hospitals will not fill their house staffs out of proportion to present quotas.

Dr. Graham moved that the Committee on Postwar Medical Service protest most violently against the intolerable situation which that portion of the directive imposes. After extended discussion, during which Miss Switzer stated that it was unfortunate that that particular portion of the directive should have been so worded but that she did not think it needed be taken too seriously, no action was taken on the motion, and Dr. Johnson's report was adopted. Dr. Graham then moved that the committee go on record as favoring taking returning medical officers for residencies in teaching hospitals approved for residencies by the American Medical Association in as great numbers as possible. Dr. Johnson added to the motion, with Dr. Graham's consent, "and without any kind of quota limitation." The motion was adopted unanimously after extended discussion.

There was lengthy discussion on the subject of the deceleration of the medical school curriculums, mentioned in Dr. Johnson's report, and Father Schwitalla moved that Dr. Johnson be asked to present to the executive committee of the Association of American Medical Colleges for its discussion and action a request that the War Department be asked to discontinue its Army Specialized Training Program at the end of each school's current session. The Chairman suggested amendment of the motion by adding "and, in the event of the College Association taking favorable action on the request, that that association take up the matter directly with the War Department." The motion, seconded by Dr. Bierring, was adopted.

BUREAU OF INFORMATION

Dr. West presented a report on the activities of the Bureau of Information, which follows in condensed form:

> Since V-J day the Bureau of Information has received each week about 565 letters from medical officers, and a weekly average of 110 physicians have come to the office for specific information regarding medical education, licensure and relocation.
>
> One of the important objectives of the Bureau of Information has been to assist the returning doctor to make a wise selection of a community in which to reestablish his practice. Medical officers contacting the Bureau for information regarding opportunities in certain states are furnished with complete listings of the areas in the states where there is need for a physician. For further information regarding the establishment of a practice in certain areas they are referred to the secretaries of the county and state medical societies.
>
> There appears to be among the returning veterans a trend to get away from the rush and tension of practice in large urban centers. It is felt that through the cooperation of the smaller communities in attracting physicians to their areas by offering them better hospital facilities and through an organized grouping of the physicians' services in health centers there will be little difficulty in getting the physician

seeking a place to reestablish his practice to go into areas where he is most needed.

Another objective of the Bureau of Information has been to have at the central office up to date statistics of the medical facilities for each area in the country. At present there is a permanent card file for the 3,072 counties in the United States giving important data concerning the unit, the county. There are still 551 counties that have not returned the completed summary sheets for their areas. Considering the many changes that have been taking place since V-J day and the importance of having accurate statistics at the central office of the Bureau, a memorandum will soon be sent through the state medical offices to the secretaries of the county medical societies giving the distribution of physicians for their counties as recorded at the Bureau and requesting the secretaries to make any changes necessary so that the Bureau may have a picture of the medical personnel in their areas and of the present and future needs for the adequate medical care of their community. It is the plan of the Bureau, when the physicians who were in practice before entering the armed services have returned to their civilian practices again, to publish in The Journal periodically a map of the United States showing the physician-population ratio for each county. From time to time the Bureau will continue to publish in The Journal certain data regarding the medical and economic aspects of certain areas.

With the cooperation of all who are so vitally interested in furthering the better distribution of physicians through the timely efforts of the Bureau of Information, it is felt that the first basic point of President Truman's recent recommendation to Congress that there be a better distribution of physicians throughout the country and that physicians seeking locations to practice be encouraged to locate in areas where they are most needed can be worked out successfully.

The Council on Medical Education and Hospitals receives approximately 1,200 letters a month from physician veterans and medical officers on active duty. Most of the officers seek information on residencies in specialties, short term refresher courses, basic science instruction and other matters relating to the education of physician veterans under the G. I. Bill of Rights. Numerous requests are also received with reference to specialty certification, requirements of the individual boards, educational credit for military service, opportunities for training in army, navy and veterans' hospitals, preceptorships and assistantships, affiliated hospital assignments, quota allocations and deferment of residents and assistant residents under the 9-9-9 program of medical education. Several seek information on hospital administration, medical licensure requirements, opportunities for staff appointments, organization of clinics, office plans, surplus equipment and supplies, financial aids in training and practice, suitable appointments for handicapped veterans and various other questions.

All inquiries receive careful attention, and every effort is made to supply complete information to all medical officers. In relation to educational opportunities, the Council provides lists of postgraduate continuation courses for veteran and civilian physicians, hospitals approved for internships, residencies and fellowships, and lists of vacancies reported in relation to individual specialties. Since Oct. 18, 1945 the Council has conducted two surveys to ascertain the number of vacancies available in approved hospitals for returning medical officers. The Council is also continuing its efforts to establish additional high grade residency programs in hospitals that have not yet developed their educational service to full capacity. Through these activities many new services are now in process of organization and may soon be added to the approved lists.

Approximately 200 medical officers visit the Council's office each month, seeking in general the same type of information as requested in the letters already mentioned. Among these men there is great interest in certification and specialty practice, although the older group, 35 to 40 or over, hesitate as a rule to undertake a long term residency program of three years to qualify for board certification. Many of these, however, are hoping to obtain assistantships or preceptorships that combine both practice and education and at the same time afford greater financial aid. Some officers are undecided as to future training and practice and appreciate very much the assistance that our office is able to give through personal counseling. A considerable number of the officers are critical of their army service and some are disappointed that educational appointments are not immediately available for residency or postgraduate training. It is observed, however, that the great majority are applying at university hospitals or medical centers, where requests for training are already in excess of available facilities.

The personal interviews have been exceedingly helpful in relation to these problems. The medical officers appreciate the opportunity to express their views, and it is also possible in these contacts to explain more fully the work of the American Medical Association in connection with graduate and postgraduate medical education. The value of these contacts is clearly evident, and every effort will be made to continue our assistance and personal service to the returning medical officer.

The Bureau of Legal Medicine and Legislation has actively cooperated with the Bureau of Information in the accomplishment of the duties devolved on it. The Bureau assisted in the preparation of the Information Bulletin for Medical Officers, has answered by correspondence a considerable number of inquiries relating to problems of medical licensure and to the benefits available to medical officers under the G. I. Bill of Rights, and has accorded interviews to medical officers who have visited headquarters in person seeking information on licensure, on the G. I. Bill of Rights and on partnership agreements. Additionally, many telephone inquiries have been answered. About a week ago the Director furnished Mrs. Shuler with statistics indicating the number of inquiries answered for the Bureau of Information, a minimum of 294.

The inquiries answered during the last several months have been fairly evenly divided between licensure problems and benefits under the G. I. Bill of Rights. As to licensure problems, medical officers are concerned mainly with the problem of obtaining reciprocity licenses. Many feel that service in the military forces should constitute a qualifying factor for the obtaining of licenses by reciprocity. Relatively few inquiries have been received from medical officers who entered service without obtaining a license in any state. A much larger number have come in from graduates of unapproved schools, and these inquiries indicate a feeling that military service should qualify such graduates for licenses in states that otherwise would not consider their applications because of their school of graduation.

As to the benefits accorded by the G. I. Bill of Rights, medical officers are concerned with the maintenance allowance provided by the federal law, with whether benefits will be available during the terminal leave period, with whether benefits will be available while serving residencies and the relationship to such benefits of stipends paid by a hospital, with the procedure to be followed in taking advantage of the loan provisions of the federal law and with the procedure that a medical officer must follow in making application for benefits generally.

It was moved by Dr. Paullin that the Committee on Postwar Medical Service request the Board of Trustees of the American Medical Association to authorize the continuance of the Bureau of Information beyond the time originally contemplated, and the motion was adopted.

GRADUATE MEDICAL EDUCATION IN NAVAL HOSPITALS

Captain Eaton was requested to give the Committee a résumé of the Navy's program with respect to internships, residencies and graduate medical education, and he presented Captain Harris, who submitted the following memorandums. Captain Harris stated that the memorandum on postgraduate medical education had been prepared by Commodore Alphonse McMahon (MC), U.S.N.R.

Graduate Medical Education in Naval Hospitals.—The overall program for graduate medical education in the Navy should include an advisory committee or board consisting of reserve officers who are outstanding in their own special fields. This board or committee should be under the direct control of the Surgeon General and be responsible to him. In the formative period they can be given charge of developing their own specialties in the different centers. They can select instructors and outline the policy of the teaching of their particular specialties in all the centers. They can confer with their specialty boards in regard to the certification of medical officers and, if necessary, arrange for special certification of navy personnel. This has already been suggested by the orthopedists themselves and has been taken under advisement. This advisory board should meet with the Surgeon General at least once a month for the first year in order that this program can be followed closely and necessary changes made to fit the needs of the various centers. It is conceivable that lack of clinical material may handicap the teaching of a certain specialty in certain hospitals. Either more clinical material should be sent to this center or the teaching of the specialty should be discontinued or transferred to another hospital.

Graduate education in naval hospitals must of necessity be divided into three main divisions: The first division has to do with the eight hospitals which have been selected as centers for the teaching of specialties. It is proposed that these centers be set up at Chelsea, St. Albans, Philadelphia, Bethesda, Great Lakes, Long Beach, Oakland and Seattle. These hospitals have already been approved by the American College of Surgeons and some of them by the Council on Medical Education and Hospitals. It is proposed to set up teaching services in these hospitals, planned and executed along the lines of the teaching services in civilian hospitals. These services will be set up with interns, assistant residents and residents who will run the service under the direction of the attending instructor, who, in turn, will govern the policy of the service and supervise the activities. These centers have been selected with regard to geographic distribution and proximity to teaching institutions and medical centers. Reserve medical officers who have been on active duty will be requested to serve as consultants as far as possible. The orthopedic committee on education is setting up teaching centers in the various areas in civilian hospitals and has offered to include naval hospitals in its consideration. By accepting this offer we shall be saved the necessity of setting up our own teaching service. Another advantage to this type of teaching service is that it offers a medical officer in the Navy the same training he would have received in civilian hospitals. It is hoped that other specialties will follow the example of the orthopedic committee.

The second division of graduate medical education in the Navy has to do with the hospitals not included in the aforementioned centers, where, unless teaching services are established, the medical officers will feel that they are being neglected. In considering plans for instruction in medicine, surgery and the specialties in these hospitals, it is suggested that every effort be made to place qualified men as chiefs of service. It may be necessary to send the qualified surgeons and internists to these hospitals in preference to the centers because of their ability to set up teaching services. Thus it would be possible to give courses in these hospitals in internal medicine, general surgery, eye, ear, nose and throat and neuropsychiatry which would fit in with the plan in the first division for training in the special services. Thus a man could take either his internship or first year of residency in these hospitals and be transferred to the centers for his special training in orthopedics, plastic surgery or other subject. By combining Division I and Division II, a comprehensive graduate course can be set up in which no discrimination will be made against the men ordered to hospitals other than the teaching centers.

Division III of the educational program involves *teaching in civilian* hospitals, universities and foundations. In order to complement the first two divisions in the program, a survey should be made of teaching *fellowships* available to officers of the regular Navy. The criticism has been made with regard to prewar training in civilian institutions that *six months or even a year is too short a time in which to become* proficient in *any specialty. It may be necessary to extend the time in* civilian hospitals or to make *training in civilian hospitals a part of the* overall program for training in the specialties. Thus a medical officer could take his internship and one or two years' *residency* in naval *hospitals* and after he returns from sea duty be assigned to a civilian institution for graduate instruction in orthopedic or plastic surgery. In this way the three divisions will be integrated and *there will be no loss* of time, expense or motion in carrying out the program.

In addition to these three divisions the course at the Naval Medical Center in Bethesda should be used for indoctrination and special courses in laboratory and tropical medicine.

Postgraduate Medical Education in the Navy.—The Navy Department established the V-12 Program in March 1943 effecting the enlistment and assignment of personnel to active duty in a training capacity on July 1, *1943. This program was established* in order to assure a continuous flow of medical students deferring them from Selective Service and assuring a continuous flow of medical *officers of the Naval Reserve for assignment* to active duty for naval intern training or on the completion of civilian training. There were approximately 5,000 Ensigns H(P), U. S. N. R., serving on inactive duty as medical students who were automatically enlisted in class V-12 on the submission of resignations from their inactive Reserve status. This was a voluntary procedure, and approximately *99* per cent of all Ensigns H(P), U. S. N. R. (Medical), were enlisted in the *V-12 Medical Program.*

At the present time there are approximately 6,800 V-12 medical students *enrolled* in the *Navy College Training Program. The Navy* Department on Sept. 1, 1945 informed all medical schools that it was the *intention to place all V-12 medical students on inactive duty on the completion of the present semester.* By March 15, 1946 all V-12 medical students will have been placed on inactive duty. These students will then be required to pay all expenses, tuition, and so on, as the government is no longer responsible for any financial obligations incurred by these students. The records indicate that 3,616 medical students have graduated from the program and at present hold appointments as Lieutenants (jg) (MC), U. S. N. R.

It is the intention of the Navy Department to continue to defer from call to active duty V-12 medical students until such time as they have graduated, been appointed as Lieutenants (jg) (MC), U. S. N. R., and have completed *civilian intern training.* V-12 graduates who qualify for naval internships will be ordered to active duty as Lieutenants (jg) (MC), U. S. N. R., on graduation. Medical Reserve officers will be ordered to active duty on the completion of intern training *up to* and including six months after the termination of the present national emergency. Assignments to active duty after that date must be on a voluntary basis for Reserve officers.

The 9-9-9 Program *was accomplished by the Procurement and Assignment* Service for Physicians, Dentists and Veterinarians in cooperation with the Surgeons General of the *Army and Navy. In brief,* the function of the 9-9-9 Program was predicated on the assumption that an *insufficient number* of civilian interns would be available unless the Army and Navy agreed to defer from call to active duty a certain percentage of all medical officers graduating in *the military training programs.* The Surgeons General of the Army and Navy agreed to recommend the deferment of one third of all Reserve medical officers completing nine months of intern training *to* serve as junior residents in civilian hospitals. Under this program one half of the one third interns referred to were recommended for an additional deferment of *nine months in order* to serve as senior residents in civilian hospitals. At the present time there are *766 Naval Reserve* medical officers serving junior residencies and 135 serving senior residencies in civilian hospitals.

It is anticipated by the Bureau of Medicine and Surgery that the 9-9-9 Program will be revised in the near future. It is believed that under this revision Reserve medical officers will become available for active duty after they have completed twelve months *of intern training.* In this regard it may be necessary to extend the deferment of Reserve medical officers for the *period April 1, 1946 until July 1, 1946* as an overlapping period, the legal internship of twelve months to begin on *July 1, 1946.* If this is accomplished, V-12 medical students graduating on or about April 1, 1946 would be deferred from call to active duty *until July 1, 1947.* It is the understanding that all civilian hospitals will revert to the twelve month intern schedule commencing *July 1, 1946.* It is the intention of the Navy that the present intern schedule of nine months be *modified to* the prewar schedule of *twelve months of* intern training. It is anticipated that this will be effected April 1, 1946.

Postgraduate medical education in the Navy is recognized as being an *essential feature* of postwar plans. To maintain the high standards in the practice of *medicine* this training is of paramount importance to men who have received their medical education under the accelerative instructional *plan* of medical schools and hospitals. Furthermore, specialization has been *recognized* in the Navy, and opportunities *to become proficient* in *the various* medical specialties will be provided for the men in the Medical Corps. Realizing that *not every naval* hospital can be set up as a center for postgraduate medical education, eight naval hospitals will be maintained *as centers for* postgraduate medical training and services will be organized in these hospitals similar to the arrangements for *resident training* in universities and civilian hospitals. In addition to the regular staff of medical officers *in these* eight educational centers, certain *outstanding* authorities in the various specialties among the Naval Reserve officers will be invited to serve on the *staff as consultants and attending physicians.* These men will not only serve as consultants for *problem cases* but also organize the teaching *of their* individual specialties *with* ward round seminars and departmental meetings to *further* the teaching program. A definite head of *the training program is to be set up in the Bureau of Medicine* and *Surgery* and in addition an advisory committee consisting of the Reserve consultants will supervise and help *organize the teaching in these centers. These Reserve* consultants *will be selected by* and act as consultants to the Surgeon General while serving in this capacity. With this *type of organization it is* possible to maintain these centers so that *the courses are coordinated, allowing* the transfer of men from one center *to* another without interrupting the overall program of their training. The program for the training *of younger* men in the Naval Medical Corps will consist of a *five year period, during* which time the medical officer will be assured of his *internship* and one or two years of resident training. In view of the fact that sea duty is *necessary to maintain the* Medical *Department afloat,* this must be included in the program. During the customary two years at sea, one year at least will be *spent either on a hospital ship or on duty* at some overseas base, and one year will be used aboard battleships, *cruisers* and *other* vessels. Following the tour of sea duty the young *medical officer will* return to one *of* the training centers for at least two years of intensive work in the *specialty which has been* decided on by the Advisory Board *following his request for further* training. At the present time these postgraduate training centers *are being planned at Chelsea, Mass., St. Albans, L. I., N. Y., Philadelphia,* Bethesda, Md., Great Lakes, Ill., *Long Beach, Calif., Oakland, Calif.,* and Seattle. Not all centers will have *training in all the specialties and* the selection of the specialty will depend on available clinical *material* and competent instruction. In view of the fact that civilian *residencies* and fellowships are designed primarily to meet the requirements for certification of special practice, these requirements are to be met at the training center. The availability of veterans as patients in these training centers will increase the clinical scope and *allow for better overall teaching. It is contemplated that these* training centers will develop into as valuable opportunities for postgraduate study as the present teaching plans of *universities and other centers of medical* education.

A word should be said concerning the sea bases at which hospitals are maintained where courses of instruction will be *carried out as far as* possible. We *shall* have *bases in the Hawaiian Islands the Marianas* the Philippines the Canal Zone, San Juan, Puerto Rico and Guantanamo Cuba. In addition to these there will be four hospital ships on which training will be given. Complete records of attendance on these courses *will be* maintained at the *Bureau* of Medicine and Surgery for the convenience of giving credit for these courses as well as *for* assisting in *planning and arranging for the courses. Thus, a young medical officer* who enters the Navy will immediately enter on a postgraduate course over a period of five years. Instruction will be provided in all of the American Board specialties. His course will be planned in the Bureau of Medicine and Surgery, and definite time will be allotted for his participation in these courses. On completion of sea duty he is to return to one of the centers for further instruction in the specialty which he has requested and which has been approved by the Board.

It is conceivable and probable that places for instruction will not be available *for all the members of the Hospital Corps. Therefore* the *men* will be selected according to their aptitude, their industry and their interest in the specialty which they have chosen. In setting up these centers opportunities will be given to men who prove themselves worthy of further instruction, and every effort will be made to provide them with courses of instruction which meet the requirements of the different medical organizations and specialty *boards* and equal to or superior to those which they could obtain in civilian life.

ENROLMENT OF MEDICAL STUDENTS

Dr. Johnson, chairman of the Subcommittee on Enrolment of Medical Students, *submitted the following progress report:*

Dr. Harold Diehl of the Procurement and Assignment Service has collected data from twelve colleges and universities which in 1942 supplied *about 10 per* cent of medical school freshmen. Premedical enrolments in these schools indicate that an entirely inadequate number of freshmen of good quality *will* be available for 1946 freshmen *medical* classes.

This problem is scheduled for immediate consideration by *the* new committee on deferments of the Office of War *Mobilization and* Reconversion. Even if deferments should be made *now,* it is already too late *to provide many students for the 1946* entering classes but such deferments would materially improve conditions for *1947.*

This subcommittee and the Council on Medical Education and Hospitals have recommended that qualified men in the armed *forces* should be released for premedical studies and that qualified civilians should be deferred. These recommendations have also been *made to* the Senate Committee on Military Affairs by Col. W. Paul Holbrook who was *appointed by the Senate committee to study this problem.* There is now some indication that the Selective Service System and the Army may be ready to move in the recommended direction in the near future. We are recommending to the *Selective Service System* that men in science studies including premedicine on reaching the age of 18 should be deferred until the completion of the *academic year. This would assist* materially, since further adjustments might be possible at that time.

The progress report was adopted after discussion.

VETERANS ADMINISTRATION

Father Schwitalla, chairman *of the Subcommittee on* Establishment of Medical Corps in the Veterans Administration, reported on *the bills before Congress* with reference to reorganization of the Veterans Administration.

The Committee adopted a motion that the subcommittee be empowered to pursue its efforts toward the establishment of a commissioned medical corps in the Veterans Administration.

EDUCATIONAL PROGRAM UNDER THE G I BILL OF RIGHTS

Father Schwitalla, chairman of the Subcommittee to Confer and Cooperate with the Veterans Administration, presented the following report

The Subcommittee to Confer and Cooperate with the Veterans Administration on the educational program under the G I bill is made up of Dr Coller and myself We have been fortunate however, in having the assistance of Dr Victor Johnson I have attempted to contact Dr Coller at the various stages which I am about to report but have not succeeded in all instances I have his assurance that I am free to mention any of the matters pertaining to the developments which have taken place even of those concerning which I have not been able to consult him

Shortly after the last meeting of this committee on September 22, word was received from Mr Sidney Post Simpson, educational adviser on veterans programs of the Practicing Law Institute, New York City The practicing Law Institute acted as spokesman for the American Bar Association the American Institute of Accountants and probably for the American Institute of Banking with reference to the proposed amendments to the G I bill as embodied in H. R 3749 Mr Simpson suggested that the amendments to the bill which he was advocating on behalf of his principals were such as probably would commend themselves to the American Medical Association and he inquired whether the American Medical Association would join in endorsement of the proposed amendments to Public Law 346 The amendments pertain chiefly to the amount of tuition payable under the act, subsistence and travel allowances correspondence courses books for home study, et cetera After reaching Dr Coller and Dr Johnson by telephone it was agreed first that a telegram be sent to Mr Simpson, secondly that we request Hon Edwin C Johnson of Colorado chairman of the Senate Subcommittee on Veterans' Legislation, to permit us to file a statement on behalf of the American Medical Association even at the last minute prior to the publication of the proceedings of the hearings on the G I bill which would be held in Washington and, thirdly, that a draft be prepared immediately expressing the interest of the medical profession in the proposed amendments particularly as far as these have a bearing on the educational opportunities for physician veterans The following telegram was sent to Mr Simpson

'The educational problems of the medical profession with reference to the G I Bill are substantially similar to the educational problems of the legal profession If the subcommittee on the Veterans Educational Program of the Committee on Postwar Medical Service of the American Medical Association had the opportunity of presenting its points of view, these would be found to be in substantial agreement with the views expressed in the document 'educational needs of lawyer veterans' It is still the hope of the medical group that some of its problems can be solved by changes in the regulations It may well be however that, to effect certain desirable changes amended legislation may be necessary "

With reference to the second point, the hearings before the Senate subcommittee were held October 8 to 12 inclusive It was not possible at the time to secure representation for the Committee on Postwar Medical Service, and some time had to elapse before an adequate statement could be prepared Fortunately, Senator Johnson agreed to embody any statement made by our subcommittee in the protocol of his hearings

Accordingly, a statement was prepared by the subcommittee at a special meeting in Chicago at the headquarters of the American Medical Association on October 19 After presenting facts concerning the competence of the subcommittee to represent the Committee on Postwar Medical Service the statement requests that legislation be clarified with reference to '(a) the recognition of the hospital as an educational institution for the education of residents and (b) the recognition of the resident as a student of medicine rather than only as a professional person giving service to the hospital or to the patients in the hospital' Five amendments to the present G I bill are requested at the end of the presentation·

1 That there be introduced into the act, wherever such introduction is proper, a word or words to indicate that the hospital is an educational institution with reference to the objectives of Public Law 346 or any amendments or developments of it,

2 That physician veterans acting as residents in properly approved hospitals be recognized as "students, again within the objectives of Public Law 346 and that, accordingly, hospitals should be entitled to tuition payments for the education of such residents,

That all physician veterans be declared eligible for the educational benefits conferred by the amended G I act irrespective of their age and even though they have been holders of the M D degree for years, in other words that any restrictions such as that now contained in the regulations requesting proof that the veteran's education has been interrupted by the war should be eliminated,

4 That refresher courses should be paid for on the basis of the tuition charges made by the institution and such payments should not be limited by such restrictions as are now found in the regulations,

5 That a declaration be included in the amendments permitting physician veterans to participate in the educational benefits by beginning their studies even during their terminal leave and before the date of their actual discharge

The entire document with its recommendations was actually printed in a public document entitled "Amendments to the Servicemen s Readjustment Act of 1944 Hearings before a Subcommittee on Finance, United States Senate,' page 366

I wish next to refer to Report No 926 of the House of Representatives giving Mr Rankin's report on H R 3749 to the Committee on World War Veterans' Legislation This bill amends the Servicemen s Readjustment Act of 1944 The following quotation from Mr Rankin's report is pertinent to the recommendations made by this subcommittee

"Title II of the act, pertaining to education of veterans would be liberalized by extending the time in which a course can be initiated from two to four years after either the date of discharge or the termination of the present war, whichever is the later, and by extending the period during which education or training may be afforded from seven to nine years after the termination of the present war It will provide for short intensive postgraduate or vocational courses of less than thirty weeks, with a provision that there shall be charged against the veteran's period of eligibility the proportion of an ordinary school year which the cost bears to $500 The rate of subsistence allowance will be changed from $50 to $60 per month if the veteran is without a dependent or dependents and from $75 to $85 per month if he has a dependent or dependents'

I wish to report on a meeting at the Veterans Administration Washington D C, attended by the solicitor of the administrator, Mr Edward E Odom, the director of Vocational Rehabilitation and Education Service Mr H V Stirling, the chief of the Education and Training Division Mr Abbott L Combs, the chief of the Advisement and Guidance Division Mr Ira D Scott, and for the Committee on Postwar Medical Service Dr Victor Johnson, Dr Frederick Coller and myself At this meeting the discussion centered chiefly on the question whether it would be possible to achieve the purposes which we all have in mind that is to secure the recognition of the hospital as an educational institution and of the physician veteran serving a residency as a student, through regulation or a reinterpretation of the regulations or whether, to secure this purpose new legislation is necessary It was agreed that new legislation would not be required and that, if the Administrator of Veterans' Affairs can be assured by the appropriate officials of his own agency that the regulations are sufficiently flexible to include hospitals under educational institutions the committee's purposes could be achieved The further question was raised concerning the amendments to the existing law recommended by the subcommittee Mr Odom assured the Committee that these details were included in the amendments contemplated by the Finance Committee of the Senate, which had held hearings on H R 3749

It was determined finally that on behalf of the subcommittee a letter should be addressed to General Bradley concerning the definition of the hospital as an educational institution for the purpose of Public Law 346 The letter was transmitted to General Bradley under date of November 9 It contains an explanation of the problem and then formulates the problem as follows

"In the light of these facts, we strongly recommend that hospitals conducting acceptable residency programs be considered as educational institutions eligible for tuition benefits under Public Law 346 as amended whether or not the hospital is affiliated with a medical school and provided the hospital demonstrates that the educational program involves a financial outlay by the hospital We also recommend that physician veterans enrolled for such education be considered eligible for subsistence benefits under the law, provided these veterans are otherwise eligible

The letter was answered under date of November 29, 1945 The essential part of the answer is the following

'I am advised by the solicitor and concur in his opinion, that the training contemplated in connection with residencies and fellowships is not "training on the job' within the contemplation of the Servicemen's Readjustment Act but is in the nature of institutional training It therefore is not subject to the prohibition contained in the act against paying institutions for affording "training on the job"

Finally, I wish to report a resolution unanimously adopted by the House of Delegates of the Michigan State Medical Society at its Detroit session It should be noted that the resolution pertains to the tuition payment for refresher courses lasting for shorter periods than thirty weeks Public Law 346 authorizes payment to an amount "which bears the same relation to the maximum amount allowed . . as the length of the course bears to an ordinary school year of thirty weeks" In the amendments Mr Rankin in his report states that H R 3749 "will provide for short intensive postgraduate or vocational courses of less than thirty weeks, with a provision that there shall be charged against the veteran s period of eligibility the proportion of an ordinary school year which the cost bears to $500' The amendment does not in reality touch the problem raised by the Michigan State Medical Society It is recommended therefore, that the resolution of the Michigan State Medical Society should be transmitted with the endorsement of the Committee on Postwar Medical Service to the appropriate agency in Congress when and if it becomes apparent that such transmissal will be effective

After lengthy discussion the report was accepted with thanks as one of progress, and the Chairman announced the appointment of Dr Johnson as an additional member of the subcommittee The Chairman also stated that the subcommittee would continue to have the same authority to investigate and take action as in the past

DEMOBILIZATION OF MEDICAL OFFICERS

Dr Coller chairman of the Subcommittee on Formulation of Lists of Medical Officers to be Considered for Demobilization presented the following report

This is a terminal report This subcommittee was activated last spring even before the end of the war in Europe, and conferences were held with the Surgeon General of the Army and the directing board of the Procurement and Assignment Service at which a method was worked out whereby it was hoped that certain teachers would be released from the armed forces A total of 256 medical officers considered essential teachers by their medical schools were given opportunity to leave the service and resume their teaching positions

ACCELERATION OF DISCHARGE OF MEDICAL OFFICERS

General Lull informed the Committee, and Colonel Piper substantiated his statement, that at least 15,000 physicians would be separated as of Dec 1, 1945, with 15 000 more out of service by March 1, 1946 General Lull and Colonel Piper concurred in the statement that by the 1st of March 1946 about 15,000 physicians will be left in service and about 5,000 ASTP men will be on duty by the 1st of July 1946.

Captain Eaton stated that the essential list of Navy medical officers who are former instructors or teachers in institutions contains 126 names. Of these 66 remain. Thirty-nine of the latter have enough points for discharge and may be out already. We have no means of checking, as this is a field matter and probably disposed of by this time. Twenty-seven of the 66 have not put in for release or otherwise are not accounted for. When these apply they will be discharged. Five of these will have enough points by Jan. 1, 1946. All of 66 could go if they would apply. With regard to those who have enough points to get out and who have not yet been discharged, the difficulty is in getting suitable relief to take the place of the dischargee. Six hundred are on the sick list and 2,500 are in transit, so that the delay is a matter of circumstances.

Originally 60 points were required for discharge. On Nov. 1, 1945 these were lowered to 53 and on January 1 will be lowered to 51, and it is possible that the number will be less than this according to conditions.

RELEASE OF MEDICAL OFFICERS ASSIGNED TO *VETERANS ADMINISTRATION*

Colonel Mella stated that the same criteria apply to the Veterans Administration as apply to the Army of the United States and that, as of Dec. 15, 1945, a large number of A. U. S. officers assigned to the Veterans Administration would be demobilized. He further stated that about 60 per cent of those eligible for discharge asked to stay with the Veterans Administration and of the 40 per cent who desired to leave a great number are trying to call back their requests. He also said that the Veterans Administration was of the opinion that a proportion of the ASTP men should be assigned to the administration. Colonel Piper stated that medical officers now being assigned to the Veterans Administration are those who were formerly on duty with the Administration in a civilian capacity, those who volunteered for such duty and ASTP students, physically disqualified for duty with the Army but physically qualified for duty with the Veterans Administration.

The report of the subcommittee was accepted.

NATIONAL RESEARCH FOUNDATION

The Chairman announced that he had received a letter from Dr. Francis Blake, chairman of the Subcommittee to Study the Bush Report on Proposed National Research Foundation, in which it was stated that the subcommittee had no additions or changes to make in the report submitted to the Committee at the September meeting.

Dr. Austin E. Smith, Secretary of the Council on Pharmacy and Chemistry of the American Medical Association, presented the following statement:

> By now, practically every one recognizes that the federal government is certain to provide funds for research. This is inevitable, although not all are agreed that it is advisable. The doubt that exists in some minds is based on the fear that government subsidy of research may result eventually in the control of research, a fear which, in my mind, is justified unless a sound foundation is laid before the funds are distributed. All of us want to see more and better research. All of us want to see provided, if possible, sufficient funds to make research even better than it has been. All of us want to see such funds allocated in a fair, just and productive manner. None of us, it is certain, want to see research become another political football.
>
> With these thoughts in mind, the Council on Pharmacy and Chemistry has voted approval of the *underlying principle* which motivated the Vannevar Bush report and of the basic principles of the report itself. This committee has already received from the Council office a communication concerning the Bush report. My personal convictions are in harmony with the furtherance of research such as has been visualized by some of our better researchers. They are not entirely in harmony with all who have expressed thoughts on the *foundation* and who have advocated certain proposals for action. It is evident that whatever scheme is adopted will have to be sufficiently flexible to be adjusted as experience is gained. It is evident that there should be fair representation of medicine on the directing board, as on medical research depends much of this country's future economically and otherwise. It is evident that there should be a minimum of confusion when bills are passed, plans laid and activities begun.
>
> For these reasons and others, I would urge that social sciences be not considered, at least at this time, with physical and medical sciences, that the funds and personnel be not handled in such a way as to provide unyielding and inhibitive demands and that the directing forces stem from individuals who can truly visualize the breadth and importance of research. In the same sense I would like to see less argument concerning which *is the best available* bill and more thought concerning what is the best possible bill. So far there has been much discussion centering around the method of *appointing a director and board for the* foundation. The selection is vitally important. It will make or break the project. At this time, based on experience gained elsewhere, it would seem best to keep directorship out of political battlefields.
>
> If it were possible always to regard the whole setup as an experiment that could be changed in toto if experience indicated, there would be less need to worry concerning the actual details of operation. Unfortunately, it is often less difficult to establish something than to abolish it, even when the project eventually proves disappointing. I *myself hope* that the foundation will be even more successful than is expected. Its success, however, will depend on the interest taken by the best men in the country and that interest must be continued, forcefully if necessary, as long as the foundation is in existence.

Dr. Smith then offered *a recommendation that the Committee* on Postwar Medical Service have a subcommittee which will continue to watch all attempts at research under federal auspices, the National Research Foundation and any other research promotions to see if any good is coming from them, whether they are being politically controlled and who is getting the most benefit.

Dr. Smith's statement was received with appreciation.

THE MEDICAL PROFESSION AND MEDICAL EDUCATION IN THE PHILIPPINES

Miss Switzer *reported that she had presented to Commissioner* McNutt the statement adopted by the Committee on Postwar Medical Service at its meeting in September offering its support to any program which he might develop for the use of *surplus supplies or materials to help in the Philippine situation.* Miss Switzer read the following memorandum:

> Dr. Howard Smith and Mr. McNutt are very appreciative of the proffer of the committee on Postwar Medical Service to help in any *way possible in the rebuilding of the Medical School of the University* of the Philippines at Manila. Dr. Smith told me that the dean of the school, Dr. Antonio Sison, attended the meeting of the Association of American Medical Colleges recently held at Pittsburgh and secured the cooperation of *that group. He felt that the organizations* represented on *our committee could perhaps be most helpful by the donation of materials.* Dr. Sison secured a generous offer from the Blackstone Publishing Company to send to the university library copies of their medical books now available. Dr. Smith felt that one of the choicest gifts to the library would be copies of the *Philippine Journal of Science,* since the whole *file of this magazine was destroyed; it is very valuable for* that area. Suggestions as to where copies of that journal may be available would be most helpful, since practically everything in the library was destroyed. Any contributions of files of magazines or reprints will help. The medical society's files were not completely destroyed but will need supplementation.

Dr. Paullin, who, when it was known that he was to go on a mission to the Far East for the U. S. Navy, *had been* requested by the Committee on Postwar Medical Service and the Board of Trustees of the American Medical Association to learn everything possible as to the situation there, presented a comprehensive report, which was received with appreciation. (Dr. Paullin's report was published as a part of the proceedings of the House of Delegates in The Journal, Dec. 22, 1945, p. 1178, under the heading "Much Needed Assistance to the Philippines.")

The Chairman stated that it is planned at the headquarters of the American Medical Association to provide subscriptions to the Association's periodicals and to send other medical literature to the Philippine Medical Association and to the University Medical School and Hospital, that Dr. Peter Bassoe of Chicago only a few days prior to his death had donated his personal library for disposal by the American Medical Association to a deserving cause, and that it was the intention of Dr. West to ship that material to the Philippines as soon as possible.

LICENSURE OF RETURNING MEDICAL OFFICERS

Dr. Bierring presented the following report, which supplements the report submitted by him at the meeting of the Committee in September:

> 1. Admission to licensure by state medical boards of graduates of unapproved medical schools who have demonstrated their competence in connection with their military service: As stated in the previous report, Illinois and Massachusetts admit to licensure graduates from unapproved medical schools located *in their respective states.*
>
> At a meeting of the Massachusetts Board of Registration in Medicine Nov. 17, 1945 the following policy was adopted:
>
> "Graduates of unapproved medical schools who have demonstrated their competence in connection with their military service would be obliged to take our *regular examination and would* be graded 10 points for their military service."
>
> It would appear from this action that the Massachusetts Board is admitting to examination graduates from unapproved medical colleges located in other states.

In the first report the special provision for hospital graduates in New York State was stated as follows:

"The Veterans Committee will pass on all such applications, and if they can show one or two years of military service during which time they have been actively engaged in medical or surgical work the board will endeavor to admit them to the licensing examination. If they have not had active medical or surgical work while in the armed forces, one year of attendance at an approved medical school will be accepted,"
and this evidently still prevails.

There is no change regarding this problem in any of the other states.

2. Licensure requirement for hospital residencies: As stated in the first report, the following states and the District of Columbia require a license from a hospital resident: California, District of Columbia, Illinois, Indiana, Kansas, Michigan, Minnesota, Nevada, Ohio, Oklahoma, South Carolina and Wisconsin require a license from a hospital resident.

Nebraska and Texas require a license if the resident engages in independent practice.

Rhode Island requires a license after one year of residency.

New Jersey requires a license after two years of residency.

Puerto Rico requires a license for resident, but the license is granted without examination.

Since the last meeting of the committee an effort has been made to have state boards consider hospital residencies as a part of postgraduate training, particularly as it applies to the returning medical officer.

Replies have been received on that question from the following states:

California: State law still requires licensure for hospital residencies. No provision is made for army or navy medical officers under any conditions. Must secure license under the existing laws.

District of Columbia: If returning medical officers perform duties of interns only no license required. If they diagnosed and/or treated on own responsibility, license required. Local medical practice act contains very broad definition of practice and requires all who practice locally to have District of Columbia license.

Illinois: Rules of this department have not been amended to exempt medical officers from licensure requirement during residency except as to the completion of the first three months' service which may be required to complete twelve months' hospital work required by Illinois law.

Indiana: No change in present regulations.

Kansas: No change.

Louisiana: Residencies in private hospitals must have license. The Charity Hospitals in New Orleans and Shreveport are exempted.

Michigan: Previously we have sent you the opinion of our attorney general in that the Michigan State Board of Registration in Medicine has no authority to exempt from Michigan medical licensure other than the internship period which the board is authorized to fix, completion of which Michigan medical licensure is essential.

Minnesota, Nevada, Oklahoma, South Carolina and Wisconsin: No change.

Ohio. Dr. Herbert M. Platter, secretary, Ohio State Medical Boards: "Believe matter could be handled under supervision of the staff.

Massachusetts: At a recent meeting adopted the following policy regarding returning medical officers for hospital residencies in the specialties: "There is no examination for this type of license. The applicant furnishes the board with proof that he is 21 years old, is of good moral character, has completed creditably not less than three and a half years of study in medical school and has received an appointment as an intern or resident or fellow in a hospital conducted by commonwealth, county, city or incorporated under laws of the state. Fee for such registration is $5, issued for one year and may be extended for not more than three years. Such registration limits work of resident, fellow or intern to the four walls of the hospital where he has his appointment."

It seems evident that, aside from the several exceptions noted, the state medical boards require state licensure for hospital residencies and are not inclined to accord special consideration to returning medical officers and to exempt them from state licensure in accepting hospital residencies as a part of postgraduate training.

At the meeting of the council of the Association of American Medical Colleges in Pittsburgh, October 29 and 30, the following resolutions were adopted:

"Whereas, The hospital residency is generally recognized to be an essential education experience in the various special fields of medicine; and

"Whereas, The hospital residency is required by the several specialty boards as prerequisite for admission to examination by those boards; be it

"*Resolved*, That the Association of American Medical Colleges requests the Federation of State Medical Boards to effect such changes in their respective state laws or regulations as will permit graduates in medicine to pursue such educational opportunities as are approved by the specialty boards, the Council on Medical Education and Hospitals of the American Medical Association and their respective boards without formal licensure to practice medicine during this period of training."

This resolution and other matters pertaining to licensure problems affecting the returning medical officer will be considered at a meeting of the executive committee, Federation of State Medical Boards, on Dec. 3 and 4, 1945.

Subsequent developments in the foregoing problems will be reported at the next meeting of the Committee on Postwar Medical Service.

The report submitted by Dr. Bierring was accepted.

REPORT TO HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION

The report of the Committee on Postwar Medical Service to the House of Delegates of the American Medical Association, prepared by the Chairman, was presented and was approved by the Committee. This report was published as a part of the proceedings of the House of Delegates in The Journal, Dec. 22, 1945, page 1185.

MOTION REGARDING SURPLUS MEDICAL AND DENTAL SUPPLIES

A motion offered by Dr. Camalier, recommending that there be a more liberal interpretation of the present surplus property law or changes in the regulations or a change in the Surplus Property Act in order that returning medical and dental officers might obtain needed material more promptly, failed of adoption.

In view of the importance of the dental portion of the surplus property problem, the Chairman, with the approval of the Committee, appointed Dr. Camalier as an additional member of the Subcommittee on Surplus Medical and Hospital Supplies.

TIME AND PLACE OF NEXT MEETING

It was decided that the next meeting of the Committee would be held at American Medical Association Headquarters at 10 a. m., Jan. 12, 1946.

The meeting adjourned at 1:20 p. m.

Council on Medical Service and Public Relations

IOWANS OPPOSE COMPULSORY HEALTH INSURANCE

The Iowa Poll revealed in its first survey on the compulsory health insurance issue that Iowans oppose President Truman's plan. According to a news release in the Des Moines *Register*, Dec. 16, 1945, "among those who would like to have Congress enact the president's recommendation into a law, about one in four would not be willing to pay 4 per cent of income to have the plan."

The question asked was as follows: "President Truman recommends that Congress pass a law setting up compulsory health insurance. Under his plan, sickness expenses such as doctor bills, hospital bills and dentist bills would be paid by the government out of a new tax on people's earnings. Do you think Congress should pass such a law?"

The resulting answers showed:

	Total	Men	Women
Yes	40%	42%	39%
No	49%	51%	48%
No opinion	11%	7%	13%

U. S. DEATH RATE UNDER PREWAR

The recent monthly press release by the Institute of Life Insurance pays tribute "to the care the American people have taken in the face of wartime work pressure and the acute shortage of doctors." The report shows that the death rate among civilian owners of life insurance policies may prove to be the lowest on record except for 1942.

The release reports the following:

Heart disease continued in the lead as the major cause of death, accounting for 30 per cent of civilian policyholder deaths, although the rate was not much changed from that of 1944. The current death rate from diseases of the heart and arteries is 6 per cent above that for prewar 1941. Cancer, second in importance, accounted for 15 per cent of civilian deaths and showed an increase over both 1944 and 1941.

Offsetting the increase in deaths from heart disease and cancer, there have been improvements in other directions, with sharp reductions in some cases. Deaths from the major children's diseases have dropped materially from last year and are about one third below prewar. The tuberculosis death rate is 7 per cent under 1944 and 12 per cent under 1941, contrary to past wartime trends. The death rate for influenza and pneumonia this year is nearly one third below last year and 1940, although an epidemic of respiratory cases, not yet serious, was reported at the end of the year.

One especially disconcerting change of the year is that involving automobile accidents, the death rate from which has sharply increased since lifting of gasoline rationing.

THE STATUS OF THE ENGLISH DOCTOR

(The following article was submitted by Capt. Paul K. Maloney, M. C., A. U. S., a member of the Kings County Medical Society in New York, to the Bulletin of that medical society. It is here reprinted for the general information of American physicians as to the present technic of operation of the panel system in Great Britain.—Ed.)

This material was obtained from one of the general practitioners in Kidderminster, a city with a prewar population of 30,000 which has now risen to 60,000. He is a man who has practiced "panel medicine" for ten years and has made a success of it, as far as that is possible. He has answered all questions frankly and analytically without trying to cover up the defects of the system.

This article will deal only with the practical aspects of the doctor-patient relationship and with the financial status of the doctor, rather than with the complicated and extensive administrative machinery that has come into existence. The object here is to outline how the average British citizen obtains medical care for himself and his family. For that reason the information is presented in three parts:

I. The machinery to provide the wage earner with ordinary general practitioner's care. This is called National Health Insurance and is regulated by law.

II. The machinery to provide the same thing for his dependents. This is a private venture, undertaken by a group of doctors who organize a "public medical society" for the purpose. Financial arrangements vary somewhat according to the charter of this society.

III. The machinery to provide consultant's services and hospitalization for both the wage earner and his family. This is undertaken by the "voluntary hospitals," which are run by the city or county and supported partly by private donations and partly by small subscriptions from those who wish to have a hospital insurance.

I. National Health Insurance

National Health Insurance has existed in England since about 1911, when it was passed under the sponsorship of the then Premier Lloyd George. At first it met with much opposition from the medical profession, and there were many doctors who refused to take on a panel. Wherever the system threatened to fail because of this, the government placed young medical graduates in the recalcitrant locality. This was not difficult, because in England a doctor must buy a practice when he starts and there were plenty of young men who here saw a chance to acquire a practice (even though it was only a panel practice) without having to pay the usual sum of £3,000 to £10,000 for it. Since then, health insurance has been accepted by the vast majority of doctors as an inevitable institution. In Kidderminster, of a total of thirteen doctors eleven practice panel medicine.

National Health Insurance will be discussed under the following headings:

1. What people are insured.
2. What service is provided.
3. Financial arrangements.
4. The "Approved Society."
5. The status of the doctor (*a*) financially, (*b*) professionally.

1. *What People Are Insured.*—The scheme includes every wage earner, male or female, married or single, between the ages of 14 and 64, with an income of less than £420 a year (until the war this figure was £250). The fees are deducted automatically from the pay check, so that the system may be said to be compulsory.

When the wage earner is temporarily unemployed, the state continues the payments for him, *provided he is on the dole.*

When the wage earner reaches the age of 64 he stops paying all fees, becomes entitled to the old age pension and remains insured for the rest of his life.

When he stops paying before the age of 64 (this would be impossible with people getting regular pay checks, because the deductions are automatic) he remains insured for two years after his delinquency.

People whose income is not paid in the form of a wage, such as shopkeepers, farmers and small pensioners, may make their payments quarterly. They do come within the provisions of the law, as long as their income is less than £420.

The £420 limit means that well over 90 per cent of the population of England is included.

2. *What Service Is Provided.*—This includes ordinary physician's care, office as well as house calls. No surgery except the most pedestrian kind, such as lancing a boil. The scheme also allows for some drugs, but only the less expensive ones. For those who belong to an "Approved Society" it is sometimes possible to get spectacles and dental and surgical appliances free of charge.

3. *Financial Arrangements.*—Payments are made by the week or month. They are divided equally between the employee and the employer, with the employer paying the odd penny if there is one. The total weekly contribution for individuals of 18 and over is 1 shilling 7 pence (1/7), of which the employer pays 10 and the employee 9. For an additional 3 pence (/3) it is possible to secure a very small "sickness benefit," that is an allowance during illness, but it does not amount to more than 10/ a week and only for a limited time. The /3 is paid by the employee. Shopkeepers, farmers and pensioners pay 1/5 a week, all themselves. The money is collected automatically by pay check deduction and a 1/7 stamp is pasted in a special card that is provided for this purpose. The stamps are bought at the post office.

Thus, the fund collects fifty-two times 1/7, or about 82/ a year. This is apportioned as follows:

For the doctor, 10/6, or 12.5 per cent
For drugs, 3/, or 3.5 per cent.
For mileage fees at the rate of a shilling per mile per year, /6, or 0.5 per cent.
For administrative overhead, 68/, or 84.0 per cent.

Attention is called to the disproportion of what the doctor gets and what the state collects. Up until 1939, the Fund had accumulated a surplus of £144,000,000.

4. *The "Approved Society."*—This is a sort of private insurance company, organized to help administer the scheme and give certain extra advantages to the "good risks." Only those wage earners who make separate application and who can pass a physical examination are accepted (the National Health Insurance Act itself makes no mention of a physical). The chief object of the approved society is to provide "sickness benefits," that is, small weekly payments to those who are ill and cut off from their regular source of income. It has already been pointed out that for an additional /3 a week the insured person may get a government sickness benefit, but the payments are small (not more than 10/ a week) and last only as long as there is a cash balance in his particular account. The approved society, on the other hand, is authorized to collect 4/10 out of the 82 shillings that is taken in for each individual who is a member. For this it gives:

(*a*) A sickness benefit of from 18/ to 25/ a week, which is paid as long as the illness lasts. The variation of 18 to 25 depends on the society. The better ones pay the larger amount.

(*b*) "Grants-in-aid," that is, spectacles, dental appliances and surgical appliances, but only in limited amounts. A certain sum is set aside at the beginning of each year and, when this is exhausted, no further grants can be made until the next year. Usually, the fund is used up long before the year is out.

The people who cannot belong to an approved society because of some disqualifying physical defect such as hypertension or diabetes are called deposit contributors. It is optional with them if they want to belong and pay the extra /3 a week.

5. *The Status of the Doctor.*—(*a*) Financially. A successful, busy practitioner can handle a panel of 2,000. The upper limit, fixed by law, is 2,500. A panel of 2,000 yields a yearly income

of somewhat over £1,000. This may be increased slightly by the "certificates of disability" which the doctor writes for those whose illness compels them to stay away from work. Such a certificate costs the patient 1 shilling. Since 95 per cent of the cases are ambulatory, the profits on this score are small.

In Kidderminster, with a panel of 2,000, the doctor sees an average of 30 patients a day, or 9,000 a year, so that his pay per office or house call is 2 shillings.

(*b*) *Professionally.* Professionally, the doctor's position is not a happy one for the following reasons:

Inspectors come around regularly to inspect his records. If these fail to pass, the doctor is fined without further process of law anything from £100 to £200. If a patient is disgruntled, he can report the doctor, and the doctor is then investigated by a board, made up partly of laymen, partly of doctors. Again, the penalty is in the form of a fine, although this sort of trouble is usually squelched before it reaches a board. The fact remains, however, that a crackpot patient can cause the doctors no end of unpleasantness.

More irritating is the limitation in the allowance for drugs. Only certain inexpensive items may be prescribed. When two doctors in London, unaware of this, ran a large-scale scientific experiment on their aged patients by giving them large doses of cod liver oil and malt extract (the doctors acted in good faith and accumulated valuable data), they were fined £1,000. This raised such a furor that the affair was investigated in Parliament. Regretfully, Parliament had to agree with the verdict because it was within the purlieus of the law.

Further, there is the limitation of what the doctor may do for his patient. The law says he may do only what is commonly considered to be within the province of the general practitioner. This definition has been tested repeatedly in court and has been very narrowly interpreted. For instance, a doctor may not inject hemorrhoids, give diathermy, remove polyps or electrocoagulate warts. In fact, about the only thing he can do is to prescribe some inferior drug and he resorts to that abundantly. If the patient needs a consultant or an operation, he must be sent to the hospital. The practitioner then loses track of his patient altogether, but a few with special training may apply for staff privileges. In Kidderminster, out of a total of thirteen physicians, there are only two who may operate. These are paid a small fee when they operate on a panel patient. An appendectomy nets them £1.

The average office call for a panel patient lasts three minutes: one minute to usher the patient in and out, one minute for the questioning and examination, and one minute for the writing of the prescription and the records. Since the doctor also sees many "club patients," his average daily quota of patients is from 60 to 70, about three quarters office work and one quarter house calls. His day lasts from 9 in the morning till 8 in the evening. He takes one afternoon a week off, plus his Sunday, and a two to three weeks vacation every year.

II. The Public Medical Society

To provide the wage earner's dependents with this same sort of care, doctors organize locally what is called a Public Medical Society, or "club." They hire an accountant, collectors and typists for the bookkeeping and take on a certain number of people on a sort of private panel. The average number per doctor is 1,000. The cost is 4 pence a week per individual up to a maximum of 1/4 for a single family. After that there is no further increase, so that very large families are not unduly penalized. The distribution of the profits is very interesting when compared with those of the National Health Insurance. It is as follows:

For the accountant, 7.5 per cent.
For the collectors, 12.5 per cent.
For the doctors, 80.0 per cent.

The main lesson to be learned here is that, when the state operates the system, the doctors get 12.5 per cent, but when the doctors themselves operate the system they get 80 per cent!

By having 1,000 "club patients," a practitioner can further increase his income about £660 a year. The subscribers are, of course, mainly women and children. Although they represent only half the size of the regular panel, they account for fully as many office calls, an average of thirty a day. Add to this 30 panel patients and the total becomes 60. A very ambitious man such as the one interviewed also sees about 10 private patients a day, who add some £400 to £500 a year to his income. Consequently his total income is about £2,000 a year, which is not bad even at home, but it must be remembered that he is now at the top of the heap as far as panel practice is concerned.

III. The Voluntary Hospital Contributory Scheme

To provide hospital care for the wage earner and his family there is still another scheme. It is operated by the hospitals themselves, as far as they wish to, and most of them do. A voluntary hospital exists from two sources, each one of about equal size: (1) private donations and charity drives; (2) small subscriptions by individual workers.

The fee for one wage earner and his family is 4 pence a week, to which the employer adds 1 penny, making a total of 5. There is no compulsion about it as there is about National Health Insurance. The 5 pence a week yields 21/4 a year. The Kidderminster Hospital collected £18,000 this way last year, about half its total operating cost. By being a "voluntary contributor," the wage earner insures hospitalization for himself and his family for no matter what ailment or what operation, chronics excepted.

The hospital in Kidderminster has a staff with one specialist for each of the important departments, such as surgery, medicine, x-ray and laboratory. None of these get paid, except for the surgeon, who gets £100 a year for being the head of the outpatient department. The radiologist gets no salary but has the privilege of using the department for his private patients. Consultants who must come from distant cities get a mileage fee of £100 a year.

Obstetrics, which is usually a large source of income for the general practitioner at home, is not so in England because 95 per cent of the work on indigent patients is done by midwives. Doctors are called in only when there are complications. The scheme is administered by the county, which pays the doctor 2/6 for each antepartum office call and 5/ for a house call. If the doctor does the delivery himself he collects 3 guineas and his anesthetist 1 guinea. This is paid by the county after an investigator has certified that the patient cannot pay. If the patient can pay something the doctor gets a corresponding fraction of his 3 guineas. Even in the very active practice of our informant, however, obstetrics played only a minor part.

Disadvantages of Socialized Medicine in England

The chief disadvantages of panel practice appear to be from this superficial survey:

1. The impossibility of doing good work because of the volume of work.
2. The restrictions on what the doctor can do for his patient in the office.
3. The discrepancy between the 10/6 for the doctor and the 68/ for the overhead.

NOTE.—For readers in the United States the shilling is worth about 20 cents and is written with a / sign. Thus, 5 shillings 4 pence is written 5/4. There are 12 pence to the shilling and 20 shillings to the pound.

Coming Medical Meetings

Annual Congress on Medical Education and Licensure, Chicago, Feb. 11-12. Dr. Victor Johnson, 535 North Dearborn St., Chicago, Secretary.

Conference of State Secretaries and Editors, Chicago, Feb. 8-9. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Association of Pathologists and Bacteriologists, Chicago, March 8-9. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Orthopsychiatric Association, New York, Feb. 14-16. Dr. Nina Ridenour, 1790 Broadway, Room 916, New York 19, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, March 5-8. Dr. Warren W. Furey, 30 North Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 18-21. Dr. John G. Young, 1719 Pacific Avenue, Dallas 1, Director of Clinics.

Federation of American Societies for Experimental Biology, Atlantic City, March 11-15. Dr. D. R. Hooker, 19 West Chase Street, Baltimore 1, Secretary.

Southeastern Surgical Congress, Memphis, Tenn., March 11-13. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Georgia, Secretary.

J. A. M. A.
Jan. 26, 1946

MATERNAL AND CHILD HEALTH SERVICES

Report of Annual Meeting [1] of the Children's Bureau Advisory Committees on Maternal and Child Health Services and on Services for Crippled Children. Children's Bureau, U. S. Department of Labor, Nov. 8 and 9, 1945.

The meeting was called by the Associate Chief of the Children's Bureau particularly to obtain advice on Senate Bill 1318 (H. R. 3922, H. R. 3994, H. R. 4059) known as the "Maternal and Child Welfare Act of 1945." To this end six committees were appointed from the members of the advisory committees to consider on November 8 various aspects of the proposed legislation and report their opinions to the general session of the committees on November 9.

The reports as modified and accepted or adopted in the general session and a statement by Dr. Eliot are transmitted herewith in accord with the unanimous recommendation of the general session in order to make them available for such use as each member of the Advisory Committees and the Children's Bureau might deem desirable.

* * * * * *

Report of Committee to Consider Basic Philosophy and Principles Pertaining to S. 1318

This committee discussed many fundamental principles pertaining to such legislation as proposed in S. 1318.

Certain reservations as regards the jurisdiction of the federal administrative agency under this bill, its departmental allocation and the integration of this agency, and the proposed maternal, infant and child medical care program with other federal health plans were discussed. Before giving critical consideration to the details of the proposed legislation the Committee wishes to make it clear that such consideration does not necessarily constitute an endorsement of the proposed allocation to a bureau in the Department of Labor of authority to develop and direct such an extensive medical care program.

The Committee recognizes the far reaching and significant contributions of the Children's Bureau to maternal and child health, especially in the fostering of high standards of medical and welfare services. However, in such a program as envisaged in this major step in the development of a federal health program problems of state's responsibilities and relationships with federal agencies are involved which demand consideration of the qualifications of the proposed agency for their conduct and consideration of ability to integrate the proposed program with those for the provision of health and medical services for the remainder of the population.

The Committee recommends that Congress give careful study to the problem of the proper agency to conduct this program and of the relationship between governmental agencies concerned with medical and health services.

Disapproval of paragraph (3), page 4, line 3 of section 103 was voted by 10 members, while 6 members voted approval.

The following modification (italicized) of paragraph (3), page 4, line 3 of section 103 was favored by 14 members and opposed by 3 members:

> (3) provide that as services and facilities are furnished under the plan they shall be available to all mothers and children in the state or locality *who are determined by the state health agency to be eligible and* [2] who elect to participate in the benefits of the program, and that there will be no discrimination because of race, creed, color or national origin, and no residence requirements;

Among the 14 who favored this modification were members who were opposed to the means test in principle but felt that the modification was essential to a tolerant consideration of such legislation at the present time.

It was also felt by some that if the application of a means test was left to each state the ultimate development through the nation of efficient plans for medical care, such as considered here, would not be jeopardized.

It was felt by others that this was a wholesome endorsement of state rights under such a program.

There was lengthy debate on the means of protecting medical education and through it the quality of medical care if such legislation as proposed in S. 1318 should be enacted. The Committee was in general agreement that careful consideration of the effect of such legislation on medical education and the quality of future medical care was essential if both were to be protected. Though no formal vote was taken, the Committee felt that perpetuation of medical indigence was not a prerequisite to good medical teaching and better medical care.

While no formal expression of opinion was expressed, it was pointed out that provision for the remuneration at the same rate whether the professional services were rendered by groups of professional personnel, including teaching units, or by individuals was desirable in terms both of protecting the quality of teaching service and of protecting the interests of individual physicians or other professional personnel.

Designation of members of the advisory committees of the Children's Bureau as individuals representing no organization or as the official representative of an organization was suggested. It was furthermore urged that a member who was designated as the official representative of an organization be given the power of negotiating for that organization.

In the general session November 9 this report was adopted unanimously.

Statement by Dr. Martha M. Eliot [3]

The policies of the Children's Bureau in its administration of the Emergency Maternity and Infant Care program have been referred to a number of times today and yesterday as possibly setting precedents that would not be desirable under a longtime program of services to mothers and children.

The Emergency Maternity and Infant Care program was satisfactory only as an emergency program. The Children's Bureau recognizes that, in the development of a longtime program, administrative authority of the federal and state agencies must be clarified and definitely placed. I believe that a longtime program should be state administered. I believe that under the Emergency Maternity and Infant Care program more responsibility and initiative had to be taken by the federal agency because of the emergency than would be desirable under a longtime program.

I would like to point out that S. 1318 is not an extension of the Emergency Maternity and Infant Care program for the following reasons:

1. The bill provides for an evolutionary development of the maternal and child health and crippled children's programs, state by state, over a ten year period on the basis of local and state needs and resources for meeting these needs.

2. The bill gives to the states the initiative for development of and the responsibility for carrying out state policies and procedures necessary for the operation of the state plan. The role of the federal agency would be to establish policies related to minimum standards for care and appropriate use of federal funds to carry out the purposes of the legislation.

3. This bill makes provision on a legislative basis for methods of maintaining and improving quality of care, which, under the Emergency Maternity and Infant Care program, had to be left to the Children's Bureau because of the emergency nature of that program.

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[1] Condensed from the report prepared by Dr. Alan C. Butler at the direction of the Advisory Committee.

[2] The modification is indicated by the italicized portion.

[3] Statement made by Dr. Eliot, Associate Chief, Children's Bureau, U. S. Department of Labor, at general session, Nov. 9, 1945, of Children's Bureau Advisory Committee on Maternal and Child Health Services and Advisory Committee on Services for Crippled Children and by direction of the Advisory Committees to be attached to the Report of the Committee to Consider Basic Philosophy.

4. The bill requires the Children's Bureau to obtain the advice of federal advisory committees, both general and technical, and of the state administrators concerned, before establishing federal policies to be used as guides in approving state plans. Furthermore, the bill provides for the same type of cooperation between the state administrative officials and the professional and public groups concerned.

The question of maximum fees to be paid from federal funds would, of course, have to be discussed and studied by the bureau with the professional and governmental groups concerned.

The Children's Bureau believes that the program proposed under this bill (S. 1318) would be one essential segment of a national health program and that it can and must be fitted into an overall medical care program when such is developed.

I would like to say further for Miss Lenroot and myself that we would have no objection to the transfer to another department with cabinet rank under conditions that would safeguard the integrity of the Children's Bureau and the services included in the Children's Bureau program. I would like to say further that Miss Lenroot and I would consider transfer of the Children's Bureau to an independent agency without cabinet rank as a great sacrifice for the bureau.

Majority Report of Committee on Availability of Services and Facilities

The meeting was opened by the Chairman reading subsection (3) of section 103, title I, of S. 1318, the "Maternal and Child Welfare Act of 1945":

> (3) provide that as services and facilities are furnished under the plan they shall be available to all mothers and children in the state or locality who elect to participate in the benefits of the program, and that there will be no discrimination because of race, creed, color, or national origin, and no residence requirements;

A number of the medical members present felt that the bill was unacceptable to the medical profession without the inclusion of a means test. To these the provision of services of this kind at public expense seemed an undesirable lessening of individual responsibility. Any means test would have to be conducted on a local level and administrative expenditures varying from 35 cents to 60 cents to 80 cents per family would be necessary to carry out such a test, and probably in the groups close to the upper limit it might have to be repeated every six months.

Those in favor of the subsection, as read, felt that health, like education, was something to which every American child and mother during pregnancy and the postpartum period were entitled. That in view of the fact that 85 per cent of the families had an income of less than $2,500 per year, and 92 per cent less than $3,000, there would be no great group of children that would be getting this service undeservedly.

After a considerable discussion, the matter was finally brought to a vote. The motion was made "That the means test should be used in the administration of the Pepper Act." The vote was 5 for the motion and 8 against the motion.

In view of the fact that there was considerable opposition to the motion, the Chairman suggested to the minority that it hand in a minority report (which follows):

Minority Report

The minority group of the Committee on Availability of Services and Facilities dissents from the report of the majority on the issue of providing a means test to determine eligibility of individuals or families for participation in the services provided under proposed bill S. 1318. The minority believes that to offer medical service to all, regardless of economic status, in any population group, is an unwise procedure because:

1. It encourages excessive dependence on government and discourages individual self reliance.
2. It tends to congest services intended primarily for the underprivileged and thus to deprive them of full benefits.
3. It places a needless and undesirable burden on taxpayers, especially small taxpayers least able to bear it.
4. It competes unfairly with and tends to discourage established private and semiprivate agencies already rendering meritorious service.

The minority believes in a suitable means test, to be determined at state levels after consultation with appropriate official and social service agencies and medical societies, applicable to medical care aspects only and exclusive of established public health procedures and diagnostic services in preventive medicine.

Reports were received from committees dealing with Methods of Remuneration for Professional Services, on Scope and Extension of Services, on Research Projects and Methods of Establishing Standards of Care, and on Professional Education and Training.[4]

Medical Legislation

STATE LEGISLATION

California

Bills Introduced.—A. C. R. 6-X proposes a concurrent resolution to the effect that, when legislation is enacted to provide for a medical school and center at the University of California at Los Angeles, the Board of Regents of the University of California is urged to select for the location of the medical school and center a site within the area adjacent to the intersection of Vermont Avenue with Sunset Boulevard in said city.

A. 35-X proposes to authorize the appropriation to the Regents of the University of California of the sum of seven million dollars for the purpose of establishing, equipping and maintaining a medical school and center as a unit in the University of California at Los Angeles.

A. 37-X, to amend the business and professions code, proposes to increase the annual tax and registration fees of osteopaths from $5 to $10 for residents and from $2 to $10 for nonresidents.

A. 61-X proposes an appropriation of four million dollars to the Regents of the University of California for the purpose of additional construction, improvements and equipment for the Medical Center of the University of California at San Francisco.

S. 3-X proposes the acquisition of land and buildings for temporary state hospital facilities, such property to be operated by the Department of Mental Hygiene on a temporary basis as temporary state mental institutions.

Massachusetts

Bills Introduced.—S. 118, to amend the medical practice act, proposes that the laws relative to the eligibility of an applicant for registration as a qualified physician in force immediately prior to Jan. 1, 1941 shall continue to govern as to the eligibility of any applicant who shall have received the degree of doctor of medicine prior to the effective date of this proposal from an educational institution legally chartered by the commonwealth of Massachusetts having power to confer degrees in medicine.

H. 232, to amend the law relating to commitments of insane persons, proposes that such commitments shall be made only on the certification of two properly qualified physicians who have been selected by the judge having authority to commit, such physicians having been selected from lists prepared monthly by the judge.

H. 337 proposes the construction of an addition to the Westfield state sanatorium for the care and treatment of persons suffering from cancer.

H. 458 proposes that a veteran eligible for admission to the state Soldiers' Home may be hospitalized and treated at any public or private hospital when there are not sufficient facilities at the Soldiers' Home to care for such veteran. The cost of such hospitalization and treatment shall be paid by the state.

S. 27, to amend the law relating to divorce, proposes to authorize a decree of divorce where both parties are residents of the commonwealth and one of them has become incurably insane and has been confined for at least five consecutive years prior to the filing of the bill for divorce.

S. 90 proposes the enactment of a cash sickness compensation act.

S. 188, to amend the medical practice act, proposes to require every qualified physician to submit annually to an examination and test for venereal disease and to display prominently in his office a certificate of the board stating the date and result of the last examination.

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[4] This is a condensed report. Inquiries for further information should be addressed to the United States Department of Labor, Children's Bureau, Washington 25, D. C.

Missouri

Bill Introduced.—S. 349 proposes the creation and establishment of a department of public health and welfare.

New York

Bills Introduced.—S. 97, to amend the law relating to animal experimentation, proposes to prohibit experiments or investigations on living dogs, even though performed under the authority of a medical college or university of the state.

S. 119 and S. 124, to amend the education law, propose to establish within the department of education a medical college to be known as New York State Victory Medical College, equipped to provide instruction for four thousand pupils.

Rhode Island

Bills Introduced.—H. 569, to amend the law relating to discrimination by any state department against certain professional groups of the healing arts, proposes to include chiropractors within the group against which no discrimination is allowed.

H. 575 proposes the creation of a special committee to study the several problems arising out of the administration of the cash sickness compensation act and to make recommendations for amendments thereto.

South Carolina

Bills Enacted.—S. 49, approved Jan. 10, 1946, has become Act No. 383, Laws 1946. It provides for the establishment of nonprofit corporations to operate hospital service plans whereby such corporations undertake to pay for hospital care rendered by hospitals to subscribers to such plans.

Washington Letter

(From a Special Correspondent)

Jan. 21, 1946.

Use of DDT Barred in Municipal Buildings

Although Washington is continuing its drive to rid itself of rats and its reputation as one of the most rodent infested spots in the nation, the District of Columbia government has turned thumbs down on the use of DDT as an insecticide in municipal buildings. The District health officer is working out an educational program with respect to the safe use of DDT as a fortifying agent for an insecticide. However, DDT dusting is continuing in a fifteen block area near the 200 block of K Street N.E., where typhus infested rats were found. The Metropolitan View Citizens Association in a letter to the House District Committee, the Senate District Committee, the District Commissioners and the Federation of Citizens Associations, meantime, has called for an investigation of the District Health Department. The association asks for an inquiry regarding delayed ambulance service to municipal hospitals, closing of tuberculosis wards while persons suffering from tuberculosis are not hospitalized, and alleged failure of health inspectors to take "prompt and effective" action against food purveyors whose establishments have been found insanitary.

Army Assigns 5,000 Medical Trainees to Special Duty

The War Department has announced that it will assign to duty with troops more than 5,000 young medical officers who have been studying at government expense in the Army Specialized Training Program. They entered the army as enlisted men and were placed in training which is now being completed through internships and residencies in civilian hospitals after graduation from medical schools. Surgeon General Kirk said that civilian hospitals have been informed so that they may obtain replacements.

Antivivisection Bills Presented in New York and Washington

Efforts to obtain passage of the Lemke bill to prohibit animal experimentation in the District of Columbia will be pressed during the present session of Congress. And from Albany it is reported that the bill to outlaw all medical experiments on living dogs was introduced in the New York State Senate by Senator Richard A. DiCostanzo, Republican of New York, and in the lower house by Assemblyman Irwin D. Davidson, Democrat of New York. A petition claimed to carry more than 119,000 signatures was presented to Governor Dewey in support of the DiCostanzo-Davidson bill. One New York newspaper (the *Journal-American*) has been aggressive in promoting the New York State antivivisection legislation, and similar material has been given prominence in a Washington newspaper (the *Times-Herald*). Early hearings on the District bill have been promised.

American Chemical Society Awards $210,000 for Fellowships

Fellowships totaling $210,000 will be awarded in 1946 and 1947 by the American Chemical Society to aid in training chemists and chemical engineers. President Bradley Dewey said that "predoctoral" students whose work was interrupted by the war will get $100,000. The remainder will go to holders of doctor's degrees who desire one or two years in research and teaching.

Hospital Sets Up Its Own Blood Bank

Since national appeals for blood donations have fallen off with the end of the war, Doctors Hospital in Washington has organized a blood bank to serve its patients on a nonprofit basis. The bank is an affiliate of the Community Blood Plasma Bank at George Washington University. Immediate donations are being sought to get the hospital bank in operation, and persons with type 4 and type O blood have been urged especially to donate now.

Date Set for Highway Safety Conference

Dates for the conference called by President Truman to try to reduce the mounting toll of deaths and injuries resulting from traffic accidents have been set as May 8 to 10 in Washington. The dates were chosen after the President conferred with several organizations promoting highway safety. Major Gen. Philip B. Fleming, federal works administrator, will preside, and Commissioner Thomas H. MacDonald of the Public Roads Administration will be conference director.

Injuries Cost Government $12,000,000 a Year

Injuries to government workers cost the government more than $12,000,000 a year, it was revealed at the recent conference of the Federal Interdepartmental Safety Council. A survey will be made immediately on existing safety work. First items to be examined will be agency accident rates and workmen's compensation claims. Programs of agencies with best records will be given special study.

Official Notes

THE SAN FRANCISCO SESSION

Special Exhibits on Fractures and on Physical Medicine; Section Exhibits for General Practitioner

The Board of Trustees has authorized two special exhibits for the Scientific Exhibit at the San Francisco session, July 1 to 5.

The special exhibit on fractures will be presented again under a committee composed of Dr. Kellogg Speed, chairman, Chicago; Dr. Frank D. Dickson, Kansas City, Mo., and Dr. Walter Estell Lee, Philadelphia. Demonstrations will be continuous throughout the week.

The special exhibit on physical medicine will include physical therapy, occupational therapy and rehabilitation. The demonstrations will be supplemented by motion pictures in an adjoining area. The committee in charge is composed of Dr. Frank H. Krusen, chairman, Rochester, Minn.; Dr. Winfred Overholser, Washington, D. C., and Dr. Howard A. Rusk, New York.

The seventeen sections of the Scientific Assembly will have groups of exhibits dealing with the various specialties of medicine. All exhibits will be presented for the physician in general practice rather than the specialist, however. Application blanks for space may be obtained from the Director, Scientific Exhibit, 535 North Dearborn Street, Chicago 10.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

COLORADO

Personal.—Dr. Walter F. Peer, Brighton, has been appointed a member of the state board of public welfare, succeeding the late Dr. Arthur T. Monismith, Fort Lupton.

State Society Plans Jubilee Session.—The Colorado State Medical Society plans to hold its seventy-fifth annual session in Estes Park, September 11-14, with headquarters in the Stanley Hotel. A special program will commemorate the diamond jubilee of the medical society.

The Maurice H. Rees Scholarship Fund.—To perpetuate the memory of Dr. Maurice H. Rees, for many years dean of the University of Colorado School of Medicine, the board of regents has authorized the establishment of a fund to be known as the "Dean Maurice H. Rees Scholarship Fund." The scholarship, to consist of tuition and the income from funds donated by students, alumni, faculty and friends, is to be awarded each year to a student entering the junior class of the school of medicine who has shown, in addition to excellent scholarship during his first two years, those fine qualities of character and conscientious devotion to duty manifested by Dean Rees during his lifetime. Dr. Rees, who died May 25, 1945, joined the Colorado faculty in 1921 as professor of physiology and pharmacology, becoming dean in 1925.

ILLINOIS

Seminars on Health Questions.—A series of community relations seminars on health questions, sponsored by the University of Illinois extension service in agriculture and home economics in cooperation with the Illinois state department of public health and the office of state superintendent of public instruction, have been held in seven Illinois cities during January. Meetings were held in Dixon, Pontiac, Springfield, Urbana, Effingham, Benton and Highland. Speakers included Dr. Richard F. Boyd, Springfield, chief of the division of local health administration, state health department.

Chicago

Charles Huggins Goes to Baltimore.—Dr. Charles B. Huggins, professor of surgery (urology) and head of the department of urology, University of Chicago School of Medicine, has been named director of the Brady Urological Institute and professor and head of the department of urology at Johns Hopkins University School of Medicine, Baltimore. The appointment will be effective July 1. The appointment fills the vacancy that occurred when Dr. Hugh H. Young, founder of the Brady institute, died on Aug. 23, 1945. Dr. Huggins, who has been affiliated with the university since 1927, has been professor of urologic surgery at Chicago since 1936. Prior to that he had been associated with the University of Michigan Medical School as instructor in surgery. He graduated at Harvard Medical School, Boston, in 1924.

LOUISIANA

Estrogenic Hormone Creams Forbidden in Louisiana.—The Louisiana State Board of Health on January 11 issued the following order:

> The manufacture, processing, packing, sale or distribution of any cosmetic or beauty preparation containing estrogenic hormone, any of its chemical derivatives or any synthetic chemical product possessing properties similar to estrogenic hormone is hereby prohibited in Louisiana.

Dr. David E. Brown, state health officer, announced that, beginning March 1, action will be taken against all cosmetic preparations containing estrogenic hormone, any of its chemical derivatives or any synthetic chemical product possessing properties similar to estrogenic hormone that are being offered for sale or distribution in Louisiana. The announcement suggests that any one offering for sale or distribution such a product immediately withdraw it from the market in Louisiana.

MARYLAND

Warfield Longcope to Retire.—Dr. Warfield T. Longcope, since 1922 professor of medicine at Johns Hopkins University School of Medicine, Baltimore, will retire June 30, ending twenty-four years' affiliation with the institution. Dr. A. McGehee Harvey, assistant professor of medicine, Vanderbilt University School of Medicine, on leave for service in the army, has been named to succeed Dr. Longcope. Dr. Harvey graduated at Johns Hopkins in 1934.

NEW HAMPSHIRE

John Wheeler New State Health Officer.—Dr. John S. Wheeler, released December 1 from the army with the rank of major, has been appointed state health officer of New Hampshire. He succeeds Dr. Alfred L. Frechette, Concord (THE JOURNAL, Dec. 8, 1945, p. 1036). Dr. Wheeler in 1937 was director of epidemiology and local health in the New Hampshire Department of Public Health. In 1940 he entered the Army of the United States and was stationed in New Hampshire on an assignment with Selective Service. His recent service has been in the Philippines. He graduated at the Boston University School of Medicine in 1930. Dr. Mary M. Atchison, acting deputy health officer in the department, has been appointed deputy health officer.

NEW YORK

Howard T. Ricketts Memorial.—A scrap book exhibiting the research of Dr. Howard T. Ricketts has been presented to the Rochester Academy of Medicine by Mrs. Howard T. Ricketts, Chicago. The book is a photo copy of one shown in a special exhibit at the academy during the dedication of its museum Nov. 16, 1941. In recognition of the gift, Mrs. Ricketts has been made honorary member of the academy.

John Romano Named Professor of Psychiatry.—Dr. John Romano, recently consultant in psychiatry, Army of the United States, European Theater of Operations, and professor of the department of psychiatry and director of service, University of Cincinnati School of Medicine, has been appointed professor of psychiatry at the University of Rochester School of Medicine and Dentistry. He will also be in charge of the new psychiatry clinic to be built in 1946 adjacent to the school's Strong Memorial Hospital. While the new appointment will be effective June 1, Dr. Romano in the interim will visit Rochester periodically to help in the clinic and the staff organization. The cost of the building is estimated at approximately $600,000, and the building cost and an endowment fund of $2,154,000 were given to the school of medicine and dentistry by Mrs. Helen W. Rivas of LeRoy (THE JOURNAL, Nov. 17, 1945, p. 819).

New York City

Medicine's Tomorrow.—An annual symposium on the state of the nation's health, under the title of "Medicine's Tomorrow," was held at the Waldorf-Astoria Hotel January 22 under the sponsorship of the Council of New York University and the faculty of New York University College of Medicine. The speakers were:

Dr. Alfred N. Richards, Philadelphia, The Impact of the War on Medicine.
Dr. Dean A. Clark, New York, Health—the People's Business.
Dr. Alan Gregg, New York, The Mission of a Medical School.

Economics and Medicine.—Dr. Dean A. Clark, Washington, senior surgeon, U. S. Public Health Service, on leave, spoke at a public meeting, January 24, at the New York Academy of Medicine, on "Economics and Medicine." Dr. Clark presented alternative and multiple solutions to the problem of medical costs today when scientific developments have complicated the economics of medicine. He also discussed the economic factors of medical service, the economic position of patients and of physicians, the inadequacy of customary methods of payment, group medical practice, preventive medicine, types of prepayment and the need for joint action on the part of the public and physicians.

Examination for School Psychiatrist.—The board of examiners of the city board of education announced that examinations for the license of school psychiatrist will be given in March. The salary starts at $6,000 and goes to $7,000 in three years. The general requirements are: Age: 30 to 45 years; graduation from an approved medical college and either (*a*) five years of practice in psychiatry including 800 hours in an approved mental institution and 1,200 hours in an approved child guidance clinic or (*b*) three years of practice in psychiatry, including 1,200 hours in an approved mental institution and 1,200 hours in an approved child guidance clinic. Further information about these requirements and the examinations will be obtained with the application. The final date for filing applications is February 25. Application forms may be obtained in person or by writing to Board of Examiners, room 437, Board of Education, 110 Livingston Street, Brooklyn 2. The written request must be accompanied by a large self-addressed envelop bearing 6 cents in stamps.

PENNSYLVANIA

Philadelphia

Gimbel Award Goes to Florence Seibert.—Florence B. Seibert, Ph.D., assistant professor of biochemistry, University of Pennsylvania School of Medicine, on January 3 was presented the $1,000 Gimbel Philadelphia Award for 1945. Dr. Seibert was given the award for her research on tuberculin.

Personal.—Dr. Thomas A. Shallow has been appointed a member of the board of health of Philadelphia and Dr. Nathan Ralph has been appointed medical director of the Country Branch of Rush Hospital for Consumption and Allied Diseases. Both appointments were to fill vacancies that occurred with the death of Dr. John D. McLean.

Charles Zeller Goes to Michigan.—Dr. Charles A. Zeller, superintendent of the Philadelphia State Hospital, has accepted the appointment as director of the Michigan Department of Mental Health, effective March 1. Dr. Zeller graduated at the University of Buffalo School of Medicine in 1927. The Michigan Department of Health, of which Dr. Charles F. Wagg has been acting executive officer, was set up by the 1945 legislature (THE JOURNAL, Nov. 17, 1945, p. 818).

Activities at Woman's Medical College.—Dr. Margaret C. Craighill, dean of the Woman's Medical College of Pennsylvania, has returned from two and a half years of military service. Dr. Craighill, the first woman ever to be commissioned as an officer in the army, has been appointed consultant for the medical care of woman veterans, the first position of its kind in the Veterans Administration. In Dr. Craighill's absence Dr. Marion S. Fay, professor of physiologic chemistry, served the college as acting dean. At the ninety-fourth annual commencement of the college on January 10 two members of the class of 1896 were present to receive a fifty year medal awarded by the Alumnae Association to members of the class, of which there are eleven living members. Dr. Anton J. Carlson, emeritus professor of physiology, University of Chicago School of Medicine, delivered the commencement address, on "The Endless Frontiers in Medicine."

SOUTH DAKOTA

Medical School Adopts Four Year Curriculum.—The first junior students will be admitted to the University of South Dakota School of Medical Sciences, Vermillion, in the spring and the present sophomore class will be the first to continue training at the university, according to the *Journal Lancet.* The expansion of the two year school to a four year curriculum was authorized by the 1945 legislature. Detailed plans for the junior and senior years are being arranged by Dr. Joseph C. Ohlmacher, dean of the medical school, and Edwin H. Shaw, Ph.D., professor of biochemistry, in cooperation with physicians in private practice. Dr. Ralph L. Ferguson, formerly senior pathologist at Edgewood Arsenal, Md., has joined the faculty as professor of pathology and will assist in the organization of the four year course. The Sioux Valley and McKennan hospitals at Sioux Falls will be utilized for the junior year clinical work. The senior year will be organized on a preceptor basis, other hospitals in the state being utilized. The state institutions at Yankton and Sanator will also cooperate in the program.

TENNESSEE

Harrison Shoulders Honored.—The Nashville Academy of Medicine and the Davidson County Medical Society will honor Dr. Harrison H. Shoulders, Nashville, President-Elect, American Medical Association, at a dinner in the Maxwell House Dining Room February 1. Dr. John O. Manier, Nashville, will be the toastmaster and Roger T. Nooe, pastor of the Vine Street Christian Church, Nashville, will deliver the invocation. The speakers will include:

Dr. William C. Chaney Memphis, Greetings from the Tennessee State Medical Association.
Dr. Ernest R. Zemp, Knoxville, The Services of Dr. Shoulders to Tennessee Medicine
Dr. Barney Brooks, Nashville, Greetings from Vanderbilt University Medical School.
Dr. Elmer L. Henderson, Louisville, Plans Proposed by American Medicine for Distributing the Cost of Medical Care on a Voluntary Basis.
Dr. Ernest E. Irons, Chicago, Socialized Medicine from a Historical Point of View.
Dr. Irvin Abell, Louisville, Legislative Proposals and Their Threat to Quality Medical Care.
Dr. Olin West, Chicago, The American Medical Association: Its Organization and Purposes.

TEXAS

The Hite Fellowships in Science.—The board of regents of the University of Texas has established four postdoctoral and ten predoctoral fellowships in the fields of science relating to cancer. In June 1944 Miss Rosalie B. Hite, Houston, bequeathed to the University of Texas the bulk of her estate with instructions that the income be used in researches into the cause, prevention, treatment and cure of cancer. The new fellowships are the result. Known as the Rosalie B. Hite Fellowships, they are to be awarded to properly qualified persons who have a doctoral degree (or the equivalent in training) and who wish to do or to continue research work which can qualify under a liberal interpretation of the terms of the bequest, or graduate students who desire to fit themselves to do research in fields which will contribute to the fundamental knowledge of normal and abnormal cells. It is the belief of the board that one of the great needs in cancer research today is a clearer understanding of how normal cells function, for without this knowledge workers in cancer research are greatly handicapped in their efforts to comprehend the cause, or causes, of abnormal behavior. With this point of view in mind, preference will be given to persons who desire training in the borderline fields of biology and the physical sciences, such as cytochemistry, biophysics, enzyme and protein chemistry and related biochemical fields. To be eligible for postdoctoral fellowships, a person must have a doctor's degree (or the equivalent in training) and have demonstrated competence in research. A stipend of $2,400 per calendar year (including a vacation of six weeks) is given in such cases. The holders of these fellowships will not be required to pay fees to the university. Research work may be carried on at the main university at Austin, at the M. D. Anderson Cancer Research Hospital at Houston or at the school of medicine at Galveston, depending on which branch of the university best serves the interests of the investigator as approved by the committee of award. An applicant for a predoctoral fellowship must have graduated with high scholastic standing from an institution of higher learning and must have had thorough training in the fundamentals of biology and chemistry so that he can profitably begin work at once in one or both of these fields at the graduate level. The stipend of the predoctoral fellowships will be $100 per month net; that is, the university will pay all fees. In case a person desires to continue work for an entire calendar year, a vacation of six weeks with pay will be allowed. While the award of these predoctoral fellowships is on an annual basis, it is desired that the holder who demonstrates satisfactory progress will be allowed a reasonable time in which to receive his doctor's degree. It is obligatory that the thesis problem come within a liberal interpretation of the terms of the Hite bequest. Applicants should write for blanks and further information by February 1. All applications must be received in final form by March 1. The committee of award will make selections by April 1, and applicants will have until April 15 for acceptance. All inquiries should be addressed to the Dean of the Graduate School, University of Texas, Austin 12, Texas.

GENERAL

Urologic Award.—The American Urological Association offers an annual award, not to exceed $500, for an essay (or essays) on the result of some specific clinical or laboratory research in urology. The amount of the prize is based on the merits of the work presented, and, if the committee on scientific research deems none of the offerings worthy, no award will be made. Competitors will be limited to residents in urology in recognized hospitals and to urologists who have been in such specific practice for not more than five years. All interested should write the secretary for full particulars. The selected essay (or essays) will appear on the program of the meeting of the American Urological Association to be held at the Netherland Plaza, Cincinnati, July 22-25. Essays must be in the hands of the secretary, Dr. Thomas D. Moore, 899 Madison Avenue, Memphis, on or before July 1.

Research Medal Goes to Tinsley Harrison.—The Research Medal of the Southern Medical Association was presented to Dr. Tinsley R. Harrison, professor of internal medicine, chairman of the department, and dean, Southwestern Medical College, Dallas, during the thirty-ninth annual meeting of the Southern Medical Association in Cincinnati, November 12-15. The award went to Dr. Harrison "in recognition of his outstanding contributions toward the elucidation of structural and functional aspects of cardiovascular disease and particularly of practical problems arising from failure of the circulation." Dr. Elmer L. Henderson, Louisville, was chosen president-elect of the Southern Medical Association and Dr. Marye Y. Dabney, Birmingham, Ala., was installed as president. Vice presidents are Dr. Lucien A. LeDoux, New Orleans, and Dr. Oscar W. Frickman, Newport, Ky. Mr. C. P. Loranz, Birmingham, Ala., is secretary-manager.

Conference on Medical Service.—The nineteenth annual meeting of the National Conference on Medical Service will be held at the Palmer House, Chicago, February 10, under the presidency of Dr. Chauncey L. Palmer, Pittsburgh, who will discuss "Medicine and the National Crisis." Other speakers on the program will include:

Mr. J. S. Jones, St. Paul, What the Farmer Expects from Medicine.
Mr. Howard Strong, Washington, D. C., What Industry Expects from Medicine.
Major Gen. Paul R. Hawley, Washington, Medical Care of Veterans.
Dr. Andrew S. Brunk, Detroit, Aims and Purposes of Conference of Presidents and Other Officers of State Medical Societies.
Dr. Victor S. Johnson, Chicago, What About Returning Medical Officers? Postgraduate Opportunities.
Mrs. M. Virginia Shuler, Chicago, Establishment of State Bureaus of Information.
Mr. J. W. Holloway Jr., Chicago, Medical Legislation.
Mr. Jay C. Ketchum, Detroit, National Plan for Volunteer Prepayment Medical Care.

International Congress on Mental Deficiency.—At the sixty-ninth annual meeting of the American Association on Mental Deficiency in Cleveland, November 28-December 1, it was decided to hold the first International Congress on Mental Deficiency in Boston in 1948, probably in May or June. The congress would observe the one hundredth anniversary of the establishment in Massachusetts in 1848 of the first American school for the mentally subnormal. Two were founded in the same year, one at Barre, a private school, and one at South Boston, the first state school. The latter has since moved to Waverly and is known as the Walter E. Fernald State School. The chairman of the international congress is Dr. Charles Stanley Raymond, superintendent of the Wrentham State School, Wrentham, Mass. Officers of the American Association on Mental Deficiency chosen at the recent meeting are Dr. Warren G. Murray, Dixon, Ill., president-elect; Miss Mabel Matthews, Hartford, Conn., president, and Dr. Neil A. Dayton, Mansfield Depot, Conn., secretary-treasurer. Future meetings of the association are to be at Montreal, October 2-5, St. Paul in 1947 and Boston in 1948.

Didactic Course for Ophthalmologists.—The Ophthalmological Study Council was organized at a meeting in Boston January 5 to furnish a course for ophthalmologists returning from military service, to be given at the Boston Medical Library. The course will be designed for those wishing to practice the specialty of ophthalmology but who cannot secure instruction to meet the requirements of the American Board of Ophthalmology at any of the existing institutions because present facilities are wholly inadequate. The program is not intended to supplant the existing university courses but to meet an emergency. The following is a condensed outline of the subjects to be covered:

April 1-May 1—Anatomy, Histology, [illegible] [illegible], Bacteriology, Pharmacology, Physiology, Sensory [illegible] [illegible], Perimetry. In the evening, Optics, Physiologic Opti[illegible] of view including Image Formation, Aberrations, Accommodation, Astigmatism and Errors of Refraction.

May 1-June 1—Pathology, Bio-chemistry, Physiology, Light Sense, Color Sense, Form Sense, Allergy. In the evening, Motor Neuro-Ophthalmology, Ocular Motility, Normal and Abnormal, Strabismus of all kinds, Binocular Vision, Space Perception, Orthoptics.

An adequate faculty is assured. Applicants must have acceptable medical training and ethical standing (membership in county medical society). The number will not be limited. This is not a laboratory or clinical course. Instruction is by lectures, required reading, quizzes and seminars and is preparatory to and in addition to the necessary clinical training in residency or preceptorship. Applications should be made to the Ophthalmological Study Council, 520 Commonwealth Avenue, Boston 15, Mass. Mention should be made of premedical and complete medical training with dates; also military service, if any, and whether or not a candidate for the American Board of Ophthalmology. The new council has the following executive officers: Drs. Walter B. Lancaster, Hanover, N. H., Theodore L. Terry, Boston, S. Judd Beach, Portland, Maine, from whose suggestion the council stemmed, and Trygve Gundersen, Brookline, Mass. This new type of course is patterned after one conducted in Oxford by Dr. Ida Mann, head of the new Ophthalmologic Institute there and the first woman to be given the title of professor at Oxford.

Commonwealth Fund Fellowships to General Practitioners.—The Commonwealth Fund has announced the conditions governing its postgraduate fellowships offered to general practitioners during 1946. Fellowship aid is to be limited to honorably discharged physicians who have seen service for six months or longer, since 1940, in the armed forces of the United States and who plan to take up residence and to practice in a community having a population of 25,000 or less situated in Mississippi, Oklahoma or Tennessee. Physicians who qualify may be considered for a fellowship which provides postgraduate study for one to four months at an approved institution. The course or courses of study shall be subject to approval by the fund and may include general medicine and diagnosis, pediatrics, obstetrics, medical gynecology or minor surgery, or combinations of two or more of these subjects. The fund is not to assume responsibility for the registration of a fellow in a particular course; this arrangement must be made by the individual with the institution where the work is offered. Courses are to be taken in continuous term and are not to depart from the approved schedule without special authorization. The applicant must be a graduate of a reputable medical school and have completed a satisfactory internship. He must furnish a record of a recent physical examination, and a personal interview with a member of the fund staff may be required. The rate of the fellowship is to be uniform at $100 a month for the duration of the award, one to four months. Applications for fellowship are to be made on forms furnished by the Commonwealth Fund, Division of Public Health, 41 East 57th Street, New York 22.

Research Foundation Enters Consent Decree on Vitamin Suit.—Attorney General Tom C. Clark announced the entry in the United States District Court at Chicago of a consent judgment terminating a civil antitrust suit against the Wisconsin Alumni Research Foundation and seventeen other firms. As part of the settlement of this case the Attorney General stated that the vitamin D patents owned by the Wisconsin Alumni Research Foundation have been dedicated to the public. The government's suit, filed on Oct. 20, 1944, charged the Wisconsin Alumni Research Foundation and seventeen of its so-called licensees in the chemical, drug, packaged foods and evaporated milk fields with unlawfully conspiring to restrain and monopolize trade and commerce in vitamin D and vitamin D products in violation of the Sherman Antitrust Act. The court's decree was entered with the consent of the Department of Justice and the defendant Wisconsin Alumni Research Foundation. It enjoins the foundation from instituting suits for infringement or to collect royalties based on any of the patents dedicated to the public and also enjoins the foundation from entering into any future licensing of patents relating to vitamin D which provide for price fixing or impose restrictions on the manufacture, use or sale of vitamin D or vitamin D products. In addition to dedication to the public of the vitamin D patents, the foundation has canceled the restrictive patent agreement which the government had attacked in its complaint. Among the patents dedicated to the public are those obtained by Harry Steenbock, Ph.D., professor of biochemistry at the University of Wisconsin, Madison, on the manufacture and use of vitamin D, the so-called "sunshine vitamin," which prevents and cures rickets. Wendell Berge, assistant attorney general in charge of the antitrust division, in discussing the allegation in the government's complaint said: The complaint charged that arbitrary and unreasonable prices of pharmaceutical vitamin D products had been maintained so that persons who most needed vitamin D to prevent and cure rickets were unable to obtain it. In this connection it stated that for at least seven years prior to 1944 the cost of manufacturing vitamin D was less than $0.15 per million units but that the five pharmaceutical manufacturers who were involved had sold the product to wholesalers at prices between $2.65 and $7.70 per million units and the public was charged between $3.35 and $10.80 per million units for the same product. It also charged that the conspiracy resulted in a limitation of the potency of vitamin D food products in order to prevent them from competing with vitamin D pharmaceutical products, with the result that the normal consumption of a vitamin D food product would not cure, although it might prevent rickets. The government has recommended to the court that the suit be dismissed as to those defendants who have canceled their restrictive agreements with the foundation. Those defendants are:

E. I. du Pont de Nemours and Company
The Quaker Oats Company
Standard Brands Incorporated
Gelatin Products Corporation
The Borden Company
Carnation Company
Pet Milk Company
Indiana Condensed Milk Company
Nestle's Milk Products, Inc.
Vitamins, Inc.
Abbott Laboratories
Mead Johnson and Company
The William S. Merrell Company
Parke, Davis and Company
E. R. Squibb and Sons
Winthrop Chemical Company, Inc.
Charles Bowman

Deaths

Don Welsh Gudakunst ⊕ White Plains, N. Y., medical director of the National Foundation for Infantile Paralysis, died suddenly in Chicago, January 20, aged 51.

Dr. Gudakunst was born in Paulding, Ohio, Aug. 18, 1894. He studied in Toledo and Somerville, Mass., graduating at the University of Michigan School of Medicine, Ann Arbor, in 1919. After internship at the University Hospital in Ann Arbor Dr. Gudakunst became industrial physician for the Solway Process Company, Detroit, in 1920, and health officer of Chaves County in Roswell, N. M., the following year. In 1924 he returned to Detroit, where he served as director of the school health service of the city health department until 1937 and as deputy health commissioner from 1932 to 1937. The following year he became commissioner of the Michigan State Department of Health. During this period Dr. Gudakunst was also professor of public health and preventive medicine at Wayne University School of Medicine, Detroit. At one time he was a senior surgeon (R), U. S. Public Health Service.

Since his appointment as medical director, Jan. 1, 1940, Dr. Gudakunst had worked indefatigably in the development of the National Foundation for Infantile Paralysis. He was an Associate Fellow of the American Medical Association and a member of numerous scientific groups. He had also written extensively on many medical topics, and particularly on infantile paralysis.

Stanley Rogers Woodruff ⊕ Bayonne, N. J.; Yale University School of Medicine, New Haven, 1897; born in Orange, Conn., in 1875; specialist certified by the American Board of Urology, Inc.; clinical professor of urology at the New York Polyclinic Medical School and Hospital, New York; member of the American Urological Association; fellow of the American College of Surgeons; past president of the board of education; chairman, Section on Urology of the American Medical Association, 1934-1935; attending genitourinary surgeon, Bayonne (N. J.) Hospital and Christ Hospital, Jersey City; consulting urologist at the following hospitals: Greenville, Jersey City; St. Mary's, Hoboken; Hackensack, Hackensack; Elizabeth A. Horton Memorial, Middletown, N. Y., and St. Vincent's, Staten Island, N. Y.; died October 13, aged 70, of bronchopneumonia and carcinoma of the prostate.

Theodore John Dimitry ⊕ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1901; professor of ophthalmology and director of the department at the Louisiana State University School of Medicine; served as a lecturer on special anatomy at the Loyola University and vice president and professor of ophthalmology at the Loyola Post-Graduate School of Medicine; specialist certified by the American Board of Ophthalmology; fellow of the American College of Surgeons; a regent of the International College of Surgeons; served on the staffs of the Charity Hospital, New Orleans Hospital and Dispensary for Women and Children, De Paul Sanitarium, Hotel Dieu and the Mercy Hospital-Soniat Memorial; died in the Baptist Hospital October 27, aged 66, of coronary thrombosis.

Harry Hedgewick Drysdale ⊕ Cleveland; University of Wooster Medical Department, Cleveland, 1901; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association and the Cleveland Academy of Medicine; veteran of the Spanish-American War; a consulting member of the medical advisory board during World War I and medical examiner for the induction board during World War II; served with the U. S. Public Health Service; consultant in neuropsychiatry, St. Vincent Charity Hospital; at one time assistant superintendent of the Massillon (Ohio) State Hospital; died October 5, aged 69, of cardiac asthma.

John Gaskin Dunlop ⊕ Los Angeles; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1929; member of the American Society of Anesthetists, of which he had served as assistant secretary; formerly assistant professor of anesthesia at the College of Medical Evangelists; a fellow in anesthesia of the Mayo Foundation in Rochester, Minn., from May 14, 1931 to Sept. 15, 1934; interned at the Orange Memorial Hospital in Orange, N. J.; a member of the staff and in 1944 resigned as secretary of executive staff, Hospital of the Good Samaritan; died October 15, aged 42, of rheumatic heart disease.

Fredric Lewis, Stamford, Conn.; Long Island College of Medicine, Brooklyn, 1936; served an internship and residency at the Harlem Hospital in New York, where he also served an internship at the French Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on May 30, 1941; promoted to captain; served as flight surgeon with the Sixth Air Force in Panama; relieved from active duty June 8, 1944; on the staffs of the Stamford and St. Joseph hospitals; died in the Mount Sinai Hospital, New York, October 4, aged 36, of carcinoma.

Roland Orlando Bagby, Kansas City, Mo.; Kansas City College of Medicine and Surgery, 1920; member of the American Medical Association; died in the Research Hospital October 10, aged 59, of brain abscess.

Miles John Breuer ⊕ Los Angeles; Rush Medical College, Chicago, 1915; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians and the American Society of Clinical Pathologists; member of the American Heart Association and National Tuberculosis Association; served during World War I; at one time on the staffs of the Bryan Memorial, Lincoln General and St. Elizabeth hospitals all in Lincoln, Neb.; died in the National Military Home October 14, aged 56, of uremia.

Otto Budde, Chicago; Northwestern University Medical School, Chicago, 1895; died October 24, aged 81, of heart block and arteriosclerosis.

James Tweedie Campbell, Chicago; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1889; Bellevue Hospital Medical College, New York, 1889, and member of the Royal College of Surgeons of England, 1890; formerly professor of laryngology, rhinology and otology at the Post-Graduate Medical School and Hospital; senior attending rhinologist, otologist and laryngologist at St. Luke's Hospital, where he had been a member of the staff since 1907; died October 26, aged 79, of diabetes mellitus.

James Francis Carty Jr., New York; University of Pennsylvania School of Medicine, Philadelphia, 1942; interned at St. Francis Hospital in Hartford, Conn.; served a residency at the Memorial Hospital, where he died September 24, aged 29, of lymphosarcoma.

Mortimer Thomas Cavanaugh ⊕ Great Barrington, Mass.; Baltimore Medical College, 1898; served during World War I; for many years a member and chairman of the board of health, and school committee; medical examiner for the Great Barrington district; chief of staff, Fairview Hospital; died October 7, aged 73, of coronary occlusion.

Howard L. Clarke ⊕ La Cygne, Kan.; Kansas City (Mo.) Medical College, 1898; died in the Lawrence Memorial Hospital, Lawrence, October 19, aged 76, of carcinoma of the descending colon.

Albert Woods Dumas Sr., Natchez, Miss.; Illinois Medical College, Chicago, 1900; past president of the National Medical Association and member of advisory board to editorial staff of its journal; member of the advisory committee on child and maternal welfare, Children's Bureau; died October 1, aged 69, of cerebral hemorrhage.

Robert Franklin Elrod, Fort Payne, Ala.; Chattanooga (Tenn.) Medical College, 1905; acted as county health officer; member of the American Medical Association; died October 18, aged 63, of coronary thrombosis.

Frederick Gochnauer, Upperville, Va.; University College of Medicine, Richmond, 1903; member of the American Medical Association; member of the county board of health; on the staff of the Winchester Memorial Hospital in Winchester, where he died October 9, aged 66, of coronary thrombosis following an operation.

Frank Branch Gooch ⊕ Houston, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1916; served during World War I; on the visiting staffs of the Methodist and Memorial hospitals and St. Joseph's Infirmary; died October 8, aged 57, of coronary occlusion.

Herbert Collins Hanning ⊕ Dayton, Ohio; College of Physicians and Surgeons, Baltimore, 1894; past president of the Montgomery County Medical Society; member of the House of Delegates of the American Medical Association in 1912 and 1913 and from 1915 through 1918; at one time a member of the city board of health; died October 17, aged 77, of ruptured gallbladder.

Everett Arnold Land ⊕ Norfolk, Va.; University College of Medicine, Richmond, 1906; fellow of the American College of Surgeons; member of the Selective Service Board; on the staffs of the Leigh Memorial and Norwalk General hospitals; died October 30, aged 65, of heart disease.

Philip Le Sage, Joliet, Ill.; Chicago Medical College, 1890; in 1941 honored at a meeting of the Will-Grundy Counties Medical Association and presented with a fifty year medal and diploma commemorating his half a century in the profession; on the staffs of St Joseph's and Silver Cross hospitals; died September 24, aged 79, of arteriosclerosis.

Stephen C. Lewis, St. Petersburg, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; for many years a medical missionary in China; died in Grove City, Pa, October 21, aged 76, of adenocarcinoma of the liver.

Joseph O'Connell, Oconomowoc, Wis.; Rush Medical College, Chicago, 1903; on the staff of St. Mary's Hospital in Watertown; died September 27, aged 73.

Aaron H. Rabinovitz ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1914; died in the Jewish Hospital September 6, aged 71, of cerebrovascular disease.

Anthony John Schneider ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1898; on the staff of St. Francis Hospital; died October 9, aged 70, of injuries received when the automobile in which he was driving was struck by a train.

Orlando J. Shank, Windber, Pa.; Baltimore Medical College, 1896; surgeon for the Pennsylvania Railroad; member of the American Medical Association; served as postmaster, president of the board of health and school examiner; died September 23, aged 76, of coronary occlusion.

Herman Cecil Smith, Liberty, Texas; State University of Iowa College of Medicine, Iowa City, 1896; died in September, aged 78.

Mansfield Leonidus Spears ⊕ Pontiac, Mich.; Meharry Medical College, Nashville, Tenn., 1917; died in St. Joseph Mercy Hospital September 16, aged 55.

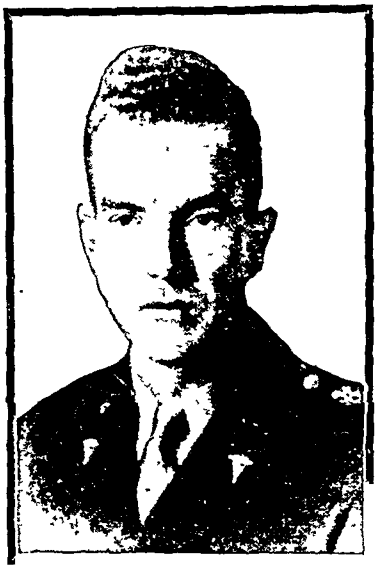
Homer Sylvanus Stallings ⊕ Troy, Ala.; Atlanta College of Physicians and Surgeons, 1902; died in the Edge Hospital September 19, aged 70, of cerebral hemorrhage.

John H. Terhorst, Milwaukee; Northwestern University Medical School, Chicago, 1894; died September 20, aged 76, of coronary arteriosclerosis.

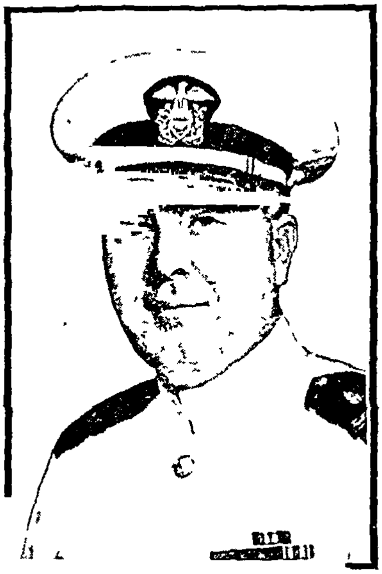
Austin Hulbert Thomas, Ironwood, Mich.; Rush Medical College, Chicago, 1883; served as physician to Newport Mining Company; died in Winneconne, Wis., September 7, aged 90, of arteriosclerotic heart disease.

William Remsen Varick, Santa Barbara, Calif.; Columbia University College of Physicians and Surgeons, New York, 1895; for four years a member of the Selective Service Board; member of the board of directors of the Cottage Hospital; died November 9, aged 74, of carcinoma.

MAJOR WILLIAM HART HOUSTON JR.
M. C., A. U. S., 1911-1944



CAPT. ROBERT BARNES WARE
M. C., A. U. S., 1914-1944



LT. COMDR. CLYDE LIONEL WELSH
(MC), U.S.N.R., 1899-1944

Irvin W. Shollenberger, Reading, Pa.; Baltimore Medical College, 1901; formerly on the staff of the Reading Hospital; died September 15, aged 69, of injuries received in an automobile accident.

Allen Alfred Yoder, Akron, Ohio; Medico-Chirurgical College of Philadelphia, 1898; died in the Akron City Hospital November 13, aged 75, of ruptured abdominal aneurysm and arteriosclerosis.

KILLED IN ACTION

William Hart Houston Jr., Palo Alto, Calif.; St. Louis University School of Medicine, 1937; interned at San Francisco Hospital; served a residency at the University Hospital in Ann Arbor, Mich.; entered the medical reserve corps of the U. S. Army as a first lieutenant on June 1, 1937; began active duty in the same rank in the medical corps, Army of the United States, on Feb. 3, 1941; promoted to captain and major; had been overseas with the paratroopers since April 1943, engaging in the Sicily and Italy campaigns; awarded the Legion of Honor posthumously "for exceptionally meritorious conduct in the performance of outstanding services as commanding officer of an airborne medical company, 82d Airborne Division, from August 15, 1942 to June 6, 1944"; killed in action in France June 6, 1944, aged 33.

Robert Barnes Ware, Lynchburg, Va.; Medical College of Virginia, Richmond, 1940; interned at the Lynchburg General Hospital; called to active duty as a first lieutenant in the medical reserve corps of the U. S. Army on July 1, 1940; assigned to duty at Fort George G. Meade, Md; promoted to captain in the medical corps, Army of the United States; had been overseas since Sept. 27, 1942; killed in action in France June 6, 1944, aged 29.

Clyde Lionel Welsh, Seattle; Tulane University of Louisiana School of Medicine, New Orleans, 1928; member of the American Medical Association and the Pacific Coast Oto-Ophthalmological Society; interned at the Ancker Hospital in St. Paul; served as resident physician at the Bismarck Hospital and Deaconess Home in Bismarck, N. D., and the University of California Hospital, San Francisco; began active duty as a lieutenant commander, medical corps, U. S. Naval Reserve, on Nov. 1, 1940; assigned to Eye, Ear, Nose and Throat Department at the U. S. Naval Hospital, Canacao, P. I.; taken prisoner by the Japanese on Jan. 1, 1942 and remained in Bilibid Prison as chief of medicine until Dec. 12, 1944; killed at Tacao, Formosa, Dec. 15, 1944, aged 45, by a direct bomb hit while being transferred to Japan on a Japanese prison ship.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 22, 1945.

Vital Statistics for the Last Year of the War

The annual summary report of the Ministry of Health for the year ended March 31, 1945 has just been published. It confirms previous reports of improved vital statistics during the war. The death rates of women in childbirth, babies in the first month of life and children up to 5 years of age were the lowest ever recorded in England and Wales, as were the death rates of tuberculosis, diphtheria, typhoid and the standardized death rates for men and women. The birth rate reached 18 per thousand of population for the first time in nineteen years. The infant mortality was 46 per thousand live births, 3 less than the record low figure for 1943. The neonatal mortality rate was 24.5, the lowest ever recorded, being 0.7 below that of 1943 and 3.8 below the rate in 1938 and 1939. The death rate of the civilian population was 9.42 for males and 6.63 for females, the lowest ever recorded. The previous low record was 9.53 and 6.84 respectively in 1942. The maternal mortality rate, including deaths from abortion, declined to 1.95 per thousand births. The deaths from all forms of tuberculosis numbered 24,163, the lowest ever recorded. The usual wartime increase in the number of cases of tuberculosis took place in 1942 and 1943 but was checked in 1944. The number of persons examined by mass radiography up to March 1945 was over 400,000. About 4,000 were found to have tuberculosis or were suspected cases. For the third successive year there was a substantial decrease in the notifications of and deaths from diphtheria; 29,949 were notified, and 934 persons died, less than a third of the average for the prewar decade. The decrease, which has been continuous since 1941, must be credited to immunization. During the year over half a million children were immunized, but this is still not satisfactory, since this number is only a little over half the births of the previous year.

The Problem of Rickets

Rickets is no longer a common disease in Britain, because of improved methods of feeding. A special inquiry by the British Pediatric Society, by arrangement with the Ministry of Health, showed, however, that wartime conditions had produced some increase of the disease. Owing to the lack of sunshine in this country, the deficiency of vitamin D is a nutritional problem. Because of the mild form in which rickets now occurs, the diagnosis is extremely difficult. When there are only minor bone signs clinical diagnosis may be impossible. Radiology is then of great help, and in doubtful cases it should be supplemented by determination of the blood phosphatase. For prevention and treatment the memorandum gives specific instructions. In order to prevent rickets it is recommended that babies, however fed, should receive a supplement of vitamin D in daily doses of 500 to 800 international units, given in the form of cod liver oil. For the treatment of active rickets ultraviolet irradiation should be combined with larger doses of vitamin D than those recommended for prophylaxis.

The Stethoscope versus the X-Rays

At the Section of Medicine of the Royal Society of Medicine there was an important discussion by physicians and radiologists on the use of the stethoscope and x-rays. Dr. James Maxwell remarked that many doctors falsely assumed that if pathologic physical signs were not detected in the chest there was nothing wrong. The absence of these signs does not exclude tuberculosis or early bronchial carcinoma, both curable if detected before physical signs are present. Students should be taught the x-ray appearance of the normal chest and its variations. Often the x-ray film will reveal a lesion which physical examination will miss, and sometimes the converse will be true. A practitioner who does not insist on x-ray examination of a suspected chest, especially after hemoptysis, might be sued for negligence.

Dr. Peter Kerley believes that the stethoscope has limited uses so that radiography should be considered indispensable. Views in three directions and tomography are essential for a proper interpretation. However, the stethoscope is superior in the diagnosis of heart conditions. Contrast mediums for angiography will soon be made completely safe, and then radiologists will be able to demonstrate chambers of the heart and the pulmonary circulation.

Dr. Geoffrey Marshall felt that there was no reason for discarding either instrument but he considered the x-rays more valuable. The stethoscope was important as an adjunct to radiography.

In the discussion there was general agreement between physicians and radiologists that the stethoscope is valueless in the majority of cases of early pulmonary disease. Many thought that too much emphasis was still placed on obsolete stethoscopic signs. Potential advances in chest radiography may soon lead to large condenser discharge machines with focal spot measures in fractions of a millimeter, so that not only great increase in detail but double and quadruple magnification of suspected areas may be obtained.

PARIS

(From Our Regular Correspondent)

Dec. 8, 1945.

Frequency of Cancer in France

In an article recently published in the *Archives de médecine sociale* Professor Huguenin states that cancer mortality in France was 60,500 deaths in 1943 and 51,810 in 1936. This is a rate of 161 per hundred thousand inhabitants for 1943. Women represent 56 per cent of the cases and men 44 per cent. Cancer of the uterus is the most common, comprising 24 per cent, and the least frequent is cancer of the urinary system, with 1 per cent. The rate of mortality is higher than for tuberculosis (140 per hundred thousand inhabitants) in 1943, with a total of 55,000 deaths. Five thousand children under 15 years of age lose either their father or their mother each year through cancer. Mortality from cancer is not the same throughout the country; its rate varies from 175 to 200 per hundred thousand inhabitants in the center of France; it is under 125 or from 125 to 150 in the South and from 150 to 175 in the North and the Southeast. A new fact, found generally, is the diminution of the age of cancerous people This phenomenon, emphasized by Huguenin at the Academy of Medicine, is seen especially among repatriated military prisoners. In this case traumatism plays a part, as was seen after the war of 1914-1918. Of 501 repatriated cancerous people, 6 were under 20 years of age, 64 were from 20 to 30 years old, 268 from 30 to 40 years and 163 over 40 years of age, or 338 patients under age 40.

French Association for the Advancement of Science

Among the numerous foreign delegates at the sixty-fourth congress of the French Association for the Advancement of Science were Richard Gregory Bart, president of the British Association for the Advancement of Science, Edward Appleton, secretary of the Department of Scientific Research, Professor Albrecht, vice president of the American Association for the Advancement of Science and Professors Dean Amory Worcester of Nebraska, Stanley Adair Cain of Tennessee and Capt. Alvin Russell Grove of Pennsylvania and Professors Nesmeianov and Landsberg of the Russian Academy of Sciences. The congress had organized its work in sections. medical sciences, Professor

Baudoin president; electroradiology, Professor Strohl president; pharmacology, Professor Hazard president; hygiene and public health, Dr. Leclainche president. The next congress will be held at Nice in 1946.

BRAZIL

(From Our Regular Correspondent)

Rio de Janeiro, Dec. 14, 1945.

Malignant Tumors in Gynecology

In a recent paper published to commemorate the tenth anniversary of Dr. Arnaldo de Moraes's tenure of the post of professor of Clinical Gynecology at the University of Rio de Janeiro, Dr. Hildegard Stoltz, assistant in the service, reviewed 277 malignant tumors in women treated during this decade in Dr. de Moraes's department. The 277 tumors occurred in 3,120 women, an incidence rate of 8.9 per cent. In this total the author does not include cases in which the biopsy, repeated several times, did not afford sufficient foundation for a definite diagnosis of cancer. The cancerous lesions were in the cervix of the uterus in 220 cases (79.4 per cent), body of the uterus in 10 cases (3.3 per cent), cervical canal in 4 cases (1.4 per cent), vagina in 9 cases (3.3 per cent), ovary in 8 cases (2.9 per cent), vulva in 4 cases (1.4 per cent), mammary glands in 13 cases (5.0 per cent), rectum in 5 cases (1.8 per cent), sigmoid colon in 1 case (0.4 per cent), mesentery in 2 cases (0.7 per cent) and bladder in 1 case (0.4 per cent).

During the first years of this ten year period, besides palliative therapy, surgery alone could be used with radium therapy in some cases. Roentgen therapy was not begun until 1938. Treatment of 277 cases was by surgery alone in 32 cases (11.5 per cent), surgery and radium therapy in 6 (2.1 per cent), surgery and roentgen therapy in 14 (5.0 per cent), surgery, radium therapy and roentgen therapy in 1 case (0.3 per cent), radium therapy alone in 101 cases (36.5 per cent), radium therapy and roentgen therapy in 39 cases (14.1 per cent), roentgen therapy alone in 9 cases (3.2 per cent) and palliative treatment alone in 75 cases (27.3 per cent).

Special Medical Courses

At the University of Rio de Janeiro Dr. A. Marques Torres of the Oswaldo Cruz Institute is giving a course for students and physicians on modern aspects of infectious and parasitic diseases. Dr. Claudio Bardy, associate professor of medicine at the same university, is giving a special course on clinical radiology.

The Center of Medical Studies of the Misericordia Hospital, founded last year by the late Dr. Paulo Cesar de Andrade and now bearing his name, is giving several special courses, among which are dietetic treatment of diseases of the digestive apparatus (Dr. Geraldo Seiffert), diagnosis of the diseases of the digestive system (Dr. L. Capriglione) and clinical cardiology (Dr. Magalhães Gomes).

The division of specialization courses of the National Department of Health is now giving, for physicians of several states of Brazil, lectures and demonstrations on mental hygiene and clinical psychiatry, cancer, vital statistics, malaria, trachoma, modern diagnosis of tuberculosis and venereal diseases.

Hospital News

Some time before the entrance of Brazil into the war in 1942 the federal government created in Rio de Janeiro the Central Hospital of the Brazilian Air Force, an institution that probably is today the best hospital of its kind in South America. A private hospital was requisitioned and under the able direction of Colonel Edgard Tostes, one of the first Brazilian physicians to be trained in the United States as an air surgeon, it was enlarged and greatly improved. The hospital has now the new equipment developed during the war in Europe and in the United States, particularly in the field of surgery. Later the government decided to establish several other hospitals in connection with the new air bases: one hospital was opened some months ago in Belem in the state of Pará. Another is to be established in the southern part of the country, perhaps in the state of Paraná.

The Butantan Institute of São Paulo has set up a hospital for the specific treatment of patients suffering from attack by venomous animals, especially snakes.

The Division of Hospital Organization of the National Department of Health has published a booklet entitled "Primer of Modern Hospital Organization," written by Dr. Theophilo de Almeida. This is the second of a series of publications designed to improve the hospital situation in Brazil. Dr. de Almeida has been in the United States for some time studying the organization of American hospitals.

The great Pedro Ernesto General Hospital has been temporarily transferred to the University of Rio de Janeiro, until the construction of University City, a project that the federal government is about to begin.

The legislative assembly of the state of Pernambuco has approved an appropriation for the construction of a hospital for emergency cases at Recife (385,000 population), the capital city of the state. A new corporation has been formed to build a general hospital also in this city. The medical superintendent of the institution, the Santa Catharina Hospital, is Dr. Alberto Borgerth, a leading surgeon of the department of hospitals of Rio de Janeiro.

A division of plastic surgery has been inaugurated at the Hospital das Clinicas, an institution associated with the University of São Paulo. The division will be directed by Dr. Carlos C. Cortese in the department of surgery under the supervision of Professor Edmundo Vasconcellos.

A department of roentgen therapy has been inaugurated at the Moncorvo Filho Hospital of this city. The equipment was a gift from Mr. Mario de Almeida, an industrialist of Rio de Janeiro.

The Hospital Nossa Senhora das Dores of Cascadura, a northern suburb of Rio de Janeiro, has been remodeled to offer better care to dependent tuberculous patients. The x-ray department was one of the sections particularly improved.

Dr. Miguel Couto Filho has donated to the state of Rio de Janeiro land at Cabo Frio, where the state administration is planning to build a modern hospital for crippled children.

Marriages

Robert T. Miller, New York, to Miss Mary Catharine Bolster of Goldsboro, N. C., in Richmond, Va., November 3.

Lucien Michele Pascucci, Waterbury, Conn., to Miss Marcella Ann Czajkowski of St. Louis, November 10.

Joe Henry McCormick Jr., Monroe, La., to Dr. Thiesen Agatha Ray of Charleston, S. C., November 13.

Myers Hampton Hicks to Miss Edith Monroe McEachern, both of Florence, S. C., in November.

Richard Bruce O'Bryan, Columbus, Ind., to Miss Mary Alice Pesch of Plymouth, August 25.

William E. Mitchell, Memphis, Tenn., to Miss Louise Davis of Chaffee, Mo., in November.

William Roy Green, Tupelo, Miss., to Miss Helene Maxine White of Victoria, Va., October 29.

William Maurice Cannon to Miss Theoleen Gantt, both of Charleston, S. C., October 17.

George T. Wohl to Dr. Norma Spielman, both of Philadelphia, November 17.

Nevin E. Aiken to Miss Barbara Botts, both of Fort Wayne, Ind., July 9.

Samuel S. Leiter to Miss Beverly Agins, both of Philadelphia, October 21.

John H. Kneidel to Miss Jean Lou Foley, both of Indianapolis, July 14.

Correspondence

DIFFERENTIAL DIAGNOSIS OF ECTODERMAL DYSPLASIA AND OF ROTHMUND'S SYNDROME

To the Editor:—Cole, Giffen, Simmons and Stroud (The Journal, *Nov. 10, 1945, p. 723) described congenital cataracts* in 2 sisters aged 24 and 10 months with congenital ectodermal dysplasia. Both infants exhibited cataracts in early life and a peculiar skin abnormality. The authors state that "on casual observation the skin changes suggest an exaggerated case of cutis marmorata. On close inspection the skin of most of the body is mottled with dull, red, confluent, slightly depressed and mildly indurated zones, which blanch very slightly with pressure. Between these darker areas are small, pale, ill defined 3-10 mm. islands of skin which appear whitish. These skin changes are most accentuated over the extremities, head and back." This description is identical in detail with the description and the picture published first by Rothmund in 1868 entitled "Cataracts in Association with a Peculiar Degeneration of the Skin" (Rothmund, A.: Ueber Katarakt in Verbindung mit einer eigenthumlichen Hautdegeneration, *Arch. f. Ophth.* **14**:159, 1868, cited by Beetham, W. P.: Atopic Cataracts, *Arch. Ophth.* **24**:21 [July] 1940). This syndrome, known in the literature as "Rothmund's syndrome," occurs collaterally in sisters and brothers in the first weeks or years of life. In the families of infants afflicted with this disease similar abnormalities are suggested only vaguely in 1 or 2 instances. Certainly a dominant or incomplete dominant heredity is not observed in these infants.

In contrast to Rothmund's syndrome, the heredity in ectodermal dysplasia of the anhydrotic type (type Widderburn-Guilford-Hutchinson) is definitely dominant (Thannhauser, S. J.: Hereditary Ectodermal Dysplasia of the Anhydrotic and Hydrotic Types, *Practitioner,* Library of Medicine and Surgery, 1938, New York, Appleton-Century Company, **13**:473). In ectodermal dysplasia of the hydrotic type (type McKay and Davidson) the abnormality is transmitted by both sexes and present in many members of the ancestry. The clinical triad of ectodermal dysplasia of the anhydrotic type consists of (1) anhydrosis, (2) hypotrichosis and (3) anodontia or severe abnormality of the denture. Persons exhibiting ectodermal dysplasia of the hydrotic type maintain the ability to perspire; the sweat and sebaceous glands are present in some instances not as numerous as in normal persons. Similar to the cases of the anhydrotic type, absence of many teeth or anomalies of the denture, as well as dystrophy of the hair, are observed. In these cases of the hydrotic type dystrophy of the nails is an additional feature. None of the numerous cases of ectodermal dysplasia of the anhydrotic and hydrotic type reported in the literature exhibited either cataracts in infancy or later life or abnormalities of the texture of the skin as described by Cole, Giffen, Simmons and Stroud. The skin in cases of ectodermal dysplasia of the hydrotic and anhydrotic type is smooth, fine and dry. S. J. Thannhauser in an article entitled "Werner's Syndrome (Progeria of the Adult) and Rothmund's Syndrome: Two Types of Closely Related Heredofamilial Atrophic Dermatoses with Juvenile Cataracts and Endocrine Features" (*Ann. Int. Med.* **23**:559 [Oct.] 1945) attempted to describe the features of these syndromes and to distinguish the symptomatology of these clinical entities from related clinical syndromes like ectodermal dysplasia of the hydrotic type. According to the analysis of the syndromes discussed in Thannhauser's paper it is evident that the cases of the 2 sisters with infantile cataracts and atrophic hereditary dermatoses are not correctly classified by Cole, Giffen, Simmons and Stroud if listed as ectodermal dysplasia of the hydrotic or anhydrotic type.

The main features of the 2 infant sisters are cataracts and a dermatosis as described by Rothmund. A. Siegrist (Der graue Altasstar, Berlin, Urban and Schwarzenberg, 1928), A. F. Schnyder (Ueber Kataract bei poikilodermie-artiger Hauterkrankung, *Klin. Monatsbl. f. Augenh.*) and more recently by R. Seefelder (Ueber familiäres Auftreten von Kataract und Poikilodermie) collaterally occurring in sisters and brothers of one family. The etiology common to the two syndromes, ectodermal dysplasia of the two types as well as Rothmund's syndrome, are germ plasm defects. In ectodermal dysplasia a defect restricted to the ectodermal germ layer is evident, while in Rothmund's syndrome a multiple germ plasm defect is suggested, since, besides the ectodermal, also the mesodermal layer (involvement of the veins visible as telangiectases and distended veins of the subcutaneous tissue) is involved in the malformation.

In the interest of a correct registration in indexes it would be important that the authors reconsider their classification of the cases of the 2 infant sisters afflicted with cataracts and atrophic dermatoses, particularly because the 2 infant sisters are the first 2 cases of Rothmund's syndrome published in the American literature.

S. J. Thannhauser, M.D., Boston.

ODOROUS WOUNDS AND FISTULAS

To the Editor:—In The Journal, Dec. 15, 1945, page 1094, Dr. W. Wayne Babcock offered several valuable suggestions pertaining to the treatment of odorous wounds and fistulas. As no drug is equally efficient in all instances and complete failures may occur, a few additional methods of dealing with malodorous wounds may be given a trial.

In advanced ulcerative cancer of the breast with offensive odors, granulated sugar scattered over the wound at frequent intervals is of great value.

Where the amount of secretion is large, powdered charcoal may be preferable on account of its great hygroscopic power. As a deodorant, charcoal is particularly efficient in urinary fistulas. Because of the property to absorb urinary odors, charcoal was frequently seen in men's lavatories before it was replaced by modern plumbing installations.

Another economical way of combating fetid secretions consists in applications of sterilized sawdust with addition of 10 per cent iodoform, placed in small gauze sacks. The absorptive and deodorant power of this mixture is especially appreciated by patients with jejunostomy or ileostomy. In chronic conditions this method offers the additional advantage of a very low cost.

It goes without saying that all these methods can be considered only as an adjuvant to an untiring nursing care.

Joseph K. Narat, M.D., Chicago.

Council on Medical Education and Hospitals

At its December 1945 meeting the Council on Medical Education and Hospitals of the American Medical Association passed the following resolution:

The Council on Medical Education and Hospitals of the American Medical Association does not intend to remove any hospital from the lists of hospitals approved for internships or residencies which furnishes teaching facilities to any veteran medical officer who is eligible for educational benefits under the Servicemen's Readjustment Act, provided the veteran is legally eligible for medical licensure in the state in which the hospital is located.

Victor Johnson, Secretary.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Compensability of Traumatic Neurasthenia.—In the course of his employment in 1936 the claimant sustained an injury to his left leg, which necessitated amputation halfway between the knee and the ankle. The Department of Labor and Industries of the state of Washington afforded him treatment, allowance for time lost, made the maximum award possible under the statute then in effect, for permanent partial disability and closed his claim in 1938. In 1941 the claimant petitioned the department to reopen his claim on the ground of aggravation of disability. He alleged that the end of the stump of his leg was tender; that the left knee was painful and unstable and the left thigh was atrophied; that he suffered pain and discomfort in the genitourinary tract, pain in the back, headaches, dizziness, and loss of hearing, vision and memory. The department, in effect, declined to reopen the claim and he appealed to the superior court, Pierce County, where the matter was tried by jury. The jury returned a verdict in favor of the claimant for 60 per cent of the maximum $2,400 allowable under the industrial insurance act of Washington for unspecified permanent partial disability, and the department and the employer appealed to the Supreme Court of Washington.

The sole question for our determination, said the Supreme Court, is whether the evidence adduced in the trial court was sufficient to take the issue of aggravation of disability to the jury. From the evidence it appears that the claimant has developed a well defined case of neurasthenia since his original claim was closed by the department in 1938. At the trial a physician testified that in his opinion this condition is the result of the injury sustained in 1936. The appellants contended, however, that the opinion of this physician is based wholly on subjective symptoms and is therefore insufficient, under applicable decisions of the Supreme Court of Washington, to sustain the award. The substance of the decisions cited by the appellants, answered the court, is that the opinion of the physician, based *wholly* on statements made by a workman, disclosing subjective symptoms only, is insufficient to take the issue of aggravation of disability to the jury. But here the physician testified:

> He can hear a watch tick from 4 to 5 inches but he can't locate the sound, he claims. . . . The measurements of his right thigh at 10 inches is 22, where the left thigh is only 19½. . . . The stump of the left leg is tender and sensitive and there is pain up and in the left groin and the hip. . . . There is some swelling and tenderness through the knee and the stump. . . . There is also a growth about the size of a walnut at the head of the fibula. He is very nervous. . . . It [difference in measurement of the thighs] shows an atrophy of the injured thigh. . . . You can see some of these conditions; others you cannot. Part are subjective and part are objective.

Obviously this physician's opinion is not based *wholly* on subjective symptoms. The appellants contended, however, that the objective symptoms referred to in the physician's testimony all pertained to the condition of the left leg, for the injury to which the claimant was awarded previously the maximum compensation allowable. The trial court, answered the Supreme Court, very properly instructed the jury that, this being the case, no additional allowance for aggravation of disability could be made on account of the condition of the leg. But this did not render evidence of the condition of the leg incompetent. On the contrary, the condition of the leg was very pertinent to the establishment of the neurasthenic condition on which the claim of aggravation of disability must rest. A physician called by the appellants testified in effect that an injury resulting in an amputation frequently does cause an injured workman to have functional complaints; that by functional he meant a condition "more or less imaginative on the part of the person, that is, something that can't be demonstrated on examination and yet the person just feels it himself"; and that the complaints of the workman "outside of the leg" were connected with the accident "from the functional standpoint" solely.

As justifying its conclusion the court quoted from *Peterson v. Department of Labor and Industries*, 178 Washington 15, 33 P. (2d) 650, as follows:

> To say that there has been no aggravation of appellant's injuries since September 1929, we would have to ignore the testimony of several disinterested lay witnesses and two physicians who testified on behalf of appellant. The lay witnesses testified to a pronounced increase in loss of memory. The two medical men found an hysterical condition to exist that was manifestly not feigned. There is no evidence in the record of the existence of such symptoms in 1929. . . .
>
> To say that this progressing disability of appellant is not due to the accident of July 10, 1926 is, in our opinion, contrary to the clear preponderance of the evidence. No other cause for his present condition is suggested. . . . Classifying his case as a "desire neurosis," it is still traumatic in origin. It is real, and it is a condition that would not exist but for the accident.

What was said in the Peterson case, said the court, might well be said of the evidence in this case. The judgment in favor of the claimant was accordingly affirmed.—*Anderson v. Department of Labor and Industries, 159 P. (2d) 397 (Wash., 1945).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Board in Specialties were published in The Journal, Jan. 19, page 173.

BOARDS OF MEDICAL EXAMINERS

Alabama: Mar. 19-21. Sec. Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.

Alaska: Juneau, March 5. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

Arkansas:* *Medical.* Little Rock, June 6-7. Sec., Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 6. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Written.* Los Angeles, March 11-14. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

Connecticut:* *Medical. Examination.* New Haven, March 12-13. *Endorsement.* New Haven, March 26. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, March 12-13. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

Delaware: *Examination.* Dover, April 9. *Reciprocity.* Dover, April 16. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

District of Columbia:* *Reciprocity.* Washington, March 11. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington 1.

Florida:* Jacksonville, June 24-25. Sec., Dr. Harold D. Van Schaik, 2736 S.W. Seventh Ave., Miami 36.

Indiana: Indianapolis, April 25-27. Sec., Board of Medical Registration & Examination, Dr. W. C. Moore, 301 State House, Indianapolis 4.

Kansas: Kansas City, March 12-13. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City 10.

Kentucky: Louisville, March 25-27. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville 2.

Maine: Portland, March 12-13. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.

Massachusetts: Boston, March 12-15. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

Michigan:* Detroit, March 26-28. Sec., Board of Registration in Medicine. Dr J. E. McIntyre, 100 W. Allegan St., Lansing 8.

Montana: Helena, April 1-3. Sec., Dr. O. G. Klein, First National Bank Bldg., Helena.

Nevada: *Reciprocity.* Carson City, Feb. 4. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

New Jersey: Trenton, June 18-19. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New Mexico:* Santa Fe, April 8-9. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

New York: Jan. 28-31. Sec., Dr. Jacob L. Lochner, Education Bldg., Albany.

Ohio: *Examination.* Columbus. March 19-22. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Oklahoma:* Oklahoma City, March 23. Sec., Dr. J. D. Osborn Jr., Frederick.

Pennsylvania: Harrisburg, January. Act. Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

South Carolina: Columbia, Feb. 24-26. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

Texas: Austin, March 27-29. Sec., Dr. T. J. Crowe, 918-20 Texas Bank Bldg., Dallas 2.

Vermont: Burlington, March or April 1946. Sec., Dr. F. J. Lawliss, Richford.

Virginia:* Richmond, March 25-28. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke.

Wyoming: Cheyenne, Feb. 4. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Connecticut: Feb. 9. Address State Board of Healing Arts, 250 Church St., New Haven 10.

Florida: Gainesville, June 4. Final date for filing application is May 20. Sec. Dr. J. F. Conn, John B. Stetson University, DeLand.

Oregon: Portland, March 2. Sec., Board of Higher Education, Mr. C. D. Byrne, University of Oregon, Eugene.

Rhode Island: Providence, Feb. 13. Chief. Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. *Requests should be accompanied by stamps* to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

210:421-560 (Oct.) 1945

*Studies on Streptomycin in Man: I. Absorption, Distribution, Excretion and Toxicity. H. A. Zintel, H. F. Flippin, Anna C. Nichols, Marjorie M. Wiley and J. E. Rhoads.—p. 421.

Case of Streptococcus Viridans Pneumonia Successfully Treated with Penicillin. S. Solomon.—p. 431.

Observations on Continuous Intramuscular Method of Administering Penicillin. H. L. Hirsh and H. F. Dowling.—p. 435.

Electrocardiographic Observations in Normal Thyroidectomized and Thiourea Treated Rats. R. K. Waller and H. A. Charipper, with technical assistance of A. H. Stenger.—p. 443.

Study of Relationship of Basal Body Temperature to Basal Metabolic Rate in Hospitalized Patients. C. Moses.—p. 453.

*Danger of Continued Arsenotherapy in Cases of Erythema of Ninth Day. W. Leifer.—p. 458.

Possible Effectiveness of L. Casei Factor ("Folic Acid") Concentrates on Refractory Anemia and Leukopenia, with Particular Reference to Leukopénia Following Radiation Therapy. C. J. Watson, W. H. Sebrell, J. L. McKelvey and F. S. Daft, with technical assistance of Violet Hawkinson.—p. 463.

Synchronization of Neurotic Behavior Patterns. E. Bergler.—p. 470.

Atrial Septal Defect: Study of Hemodynamics by Technic of Right Heart Cathéterization. E. S. Brannon, H. S. Weens and J. V. Warren.—p. 480.

Idiopathic (?) Hypoprothrombinemia: Report of Case. V. T. Austin and H. Quastler.—p. 491.

Aplastic Anemia Terminated by Removal of Mediastinal Tumor. G. H. Humphreys and H. Southworth.—p. 501.

Use of Simple Postural Test in Neurocirculatory Asthenia. W. A. Jeffers, S. C. Sheiman and G. H. O'Brasky.—p. 511.

Salmonella Appendicitis. A. D. Rubenstein and B. B. Johnson.—p. 517.

Biologic False Positive Reactions to Tests for Syphilis. H. Beerman.—p. 524.

Cancer of Mouth: Its Present Day Treatment. W. Mayne.—p. 548.

Studies on Streptomycin in Man.—Zintel and his co-workers found that the blood level of streptomycin following a single intravenous injection in man is better maintained than in the case of penicillin. Detectable amounts were usually present for six hours, as compared with two and one-half to three hours in the case of penicillin even when the intramuscular route was used for the latter drug. Following parenteral injection the drug is distributed throughout most body fluids: blood, urine, ascitic fluid, pleural fluid, aqueous humor, vitreous humor, amniotic fluid and bile. Small amounts of the drug appeared in the spinal fluid in healthy persons, but in a case of Hemophilus influenzae meningitis the spinal fluid contained 25 units per cubic centimeter. The main route of excretion for streptomycin after parenteral injection appears to be the urinary tract. Relatively little transfer of streptomycin occurs between the blood and the lumen of the gastrointestinal tract in either direction. Owing to the poor transfer of the drug across the walls of the alimentary tract, it would seem appropriate to use the drug both orally and parenterally in infections in which the pathogenic organisms are found both in the gastrointestinal tract and in the blood stream. Early side reactions have not been alarming, and late toxic effects have not so far been observed.

Danger of Continued Arsenotherapy in Erythema of the Ninth Day.—Leifer reports 14 cases in which prompt resumption of arsenical treatment after reaction was followed by severe parenchymatous injury. All of the patients were soldiers. Oxophenarsine hydrochloride was given twice weekly and bismuth subsalicylate once weekly. The maximal dose of oxophenarsine hydrochloride, 0.06 Gm., was generally employed, although frequently the initial dose was 0.03 or 0.04 Gm. The reaction occurred six to eleven days after the first dose of oxophenarsine hydrochloride. In 6 cases it appeared after three doses of the drug had been administered, in 5 cases after four doses and in 3 cases after five doses. Only 3 of the 14 patients had an eruption. Fever after the initial dose of arsenic is usually a manifestation of the systemic Herxheimer reaction, which is ascribed to massive destruction of treponemes in the circulating blood, with release of their toxins or proteins. It does not recur after subsequent injections. Fever after the second, third or later injection of arsenic must be regarded as evidence of toxic reaction or intercurrent infection. The safest course is to consider any febrile episode (except the Herxheimer reaction), especially in the first three weeks of arsenotherapy, a probable manifestation of sensitivity to arsenic. This is particularly true when the entire syndrome of erythema of the ninth day is present. It appears also to apply with equal force to those cases in which no rash is detected. In all 14 patients early continuation of arsenic after the initial reaction led to serious parenchymatous damage in the form of jaundice and agranulocytosis, with or without nephritis. Twelve of the 14 patients subsequently received an intensive course of penicillin without untoward reactions.

Annals of Surgery, Philadelphia

122:449-744 (Oct.) 1945

Problem of Portal Hypertension in Relation to Hepatosplenopathies. A. O. Whipple.—p. 449.

Technic of Using Vitallium Tubes in Establishing Portacaval Shunts for Portal Hypertension. A. H. Blakemore and J. W. Lord Jr.—p. 476.

Use of Vitallium Tubes in Strictures and Absence of Common Bile Duct. W. H. Cole, C. Ireneus Jr. and J. T. Reynolds.—p. 490.

Advanced Carcinoma of Extrahepatic Bile Ducts: Choleangiocholecystocholedochectomy. A. Brunschwig and R. R. Bigelow.—p. 522.

Arteriovenous Aneurysm: Exposure of Tibial and Peroneal Vessels by Resection of Fibula. D. C. Elkin and R. P. Kelly.—p. 529.

Surgical Treatment of More Common Types of Diaphragmatic Hernia: Esophageal Hiatus, Traumatic, Pleuroperitoneal Hiatus, Congenital Absence and Foramen of Morgagni: Report of 404 Cases. S. W. Harrington.—p. 546.

Congenital Diaphragmatic Hernia. E. J. Donovan.—p. 569.

*Idiopathic Dilatation of Esophagus: Differentiation of Clinical Types and Successful Operation in Intractable Cases. W. J. M. Scott.—p. 582.

Congenital or Hereditary Polyposis of Colon. D. B. Pfeiffer and F. M. S. Patterson.—p. 606.

*Local Use of Sulfanilamide in Treatment of Acute Appendicitis: Review of 1,481 Cases. R. S. Mueller.—p. 625.

Secondary Hemorrhage Arising from Gunshot Wounds of Peripheral Blood Vessels. N. E. Freeman.—p. 631.

Secondary Infection of Wounds. G. A. Caldwell.—p. 641.

*Traumatic Shock Incurable by Volume Replacement Therapy: Summary of Further Studies, Including Observations on Hemodynamics, Intermediary Metabolism and Therapeutics of Shock. J. Fine, H. A. Frank and A. M. Seligman.—p. 652.

Translocation of Fluid Produced by Intravenous Administration of Isotonic Salt Solutions in Man Postoperatively. F. A. Coller, Vivian Iob, H. H. Vaughan and others.—p. 663.

Metabolic Alterations Following Thermal Burns: V. Use of Whole Blood and Electrolyte Solution in Treatment of Burned Patients. W. E. Abbott, M. A. Pilling and others.—p. 678.

Rationale of Whole Blood Therapy in Severe Burns: Clinical Study. E. I. Evans and I. A. Bigger, with clinical assistance of H. Nachman.—p. 693.

Direct Flap Repair of Defects of Arm and Hand: Preparation of Gunshot Wounds for Repair of Nerves, Bones and Tendons. J. B. Brown, B. Cannon and others—p. 706.

Design for Surgical Convalescence. R. Elman and J. T. Akin Jr.—p 716.

Idiopathic Dilatation of Esophagus.—Scott recognizes four clinical types which probably differ from one another in their etiology. These types are (1) achalasia of the esophagus, (2) true cardiospasm, (3) dilatation associated with a constriction at or just above the cardia and (4) dolichoesophagus. Achalasia is probably the most common type. It usually responds well to dilation. In true cardiospasm the reflex originating focus should be discovered and removed. Cases caused by a partial constricting band near the cardia are few in number but are probably resistant to conservative treatment. Dolichoesophagus, an S shaped lengthening with pooling of esophageal contents at different levels, should probably be operated on as soon as it is recognized. This type is very difficult to control when the dilatation becomes gigantic and is complicated by infection of the esophageal wall. Subdiaphragmatic esophagogastrostomy (of the Finney pyloroplasty type) appears to be the operation of choice in cases of idiopathic dilatation of the esophagus resistant to the usual conservative measures. The symptomatic results of this operation are usually excellent whether or not the dilatation of the esophagus is entirely corrected. The danger of the operation is not excessive when proper precautions are taken After this operation has been employed more extensively, the number of cases for which it is indicated will probably be considerably increased, but it should never replace conservative dilation in the majority of cases

Local Use of Sulfanilamide in Appendicitis.—Mueller compares results obtained in a five year period preceding 1940 with the five year period since 1940 when sulfanilamide was used intraperitoneally in acute appendicitis at the Roosevelt Hospital. Sulfanilamide was applied locally in 320 out of a total of 739 cases of acute appendicitis and its complications The mortality in this group was 0.4 per cent and the postoperative complications were relatively few. In a similar group of cases in the preceding five year period operations were performed in 742 cases, with a mortality of 2 83 per cent and with considerably more complications. No serious toxic effects followed the use of sulfanilamide in the peritoneal cavity. Local use of sulfanilamide is preferable because of the possibility of a high local concentration of the drug in the peritoneal cavity. In cases complicated by abscess or peritonitis penicillin is employed postoperatively in addition to the local use of sulfanilamide. In all doubtful cases drainage should be done. as it was before the use of the sulfonamide drugs.

Traumatic Shock.—Fine and his associates earlier presented evidence that in traumatic shock the capillaries outside areas of injury do not "leak" plasma; the essential pathologic condition is not a disturbed capillary permeability but a disturbed peripheral circulation in which the amount of blood in active circulation is deficient. The therapeutic problem is one of restoring normal velocity and volume flow through capillaries. If after loss of blood replacement is effected early the problem is solved, but if too much time elapses before replacement the damage caused by the loss becomes irreversible. Whether this damage consists in a loss of integrity inherent in the central or peripheral circulatory apparatus per se or is secondary to the failure of an extravascular controlling factor is not known. No explanation for the shock state other than the hemodynamic imbalance was necessary. Tourniquet shock differs from hemorrhagic shock, but the authors show that the increased hematocrit of tourniquet shock is a liability over and above that of volume deficiency and can account for the observed differences between tourniquet shock and hemorrhagic shock. Volume deficiency is by far the greater danger, and its restoration is a more urgent need than is that of normal viscosity. Utilizing hemorrhagic shock and eliminating as far as possible operative manipulations, anesthetics and other forms of trauma, which facilitate the development of irreversibility or otherwise complicate the shock state, the authors studied various agents in every instance only after the shock state was found to be unresponsive to the replacement of all lost blood. The course of events in hemorrhagic shock leading to the development of a state of irreversibility to transfusion is a function of the severity and duration of inadequate capillary flow, with a resulting cumulative adverse effect on the integrity of cellular function in general or on a basic biochemical function in a controlling vital organ such as the liver. In studies on the intermediary metabolism in shock the aim was to discover some point in the process of biochemical disintegration, i. e. failure of completion of a normal biochemical reaction, which would identify the onset of irreversibility. It was found that metabolites, including the amino acids, are catabolized as readily in the irreversible as in the reversible phase of shock, almost as well as in the normal animal, and the increased concentration of these substances in the blood represents an adjustment of metabolic reactions at a new level. The effect of viviperfusion of the liver on the prevention of the development of irreversibility is not due to the removal of toxins or to the provision of protective substances by the donor dog during the shock phase, because the same processes operate in the dog viviperfused via the jugular vein

Cincinnati Journal of Medicine

26:337-416 (Oct) 1945

"Juxtapharyngeal" Spaces as Carriers and Barriers of Suppurations: New Anatomic Classification. K. Tschiassny.—p 337.
Tropical Diseases of Skin in Returning Military Personnel and Tourists. L. Goldman—p 352

Journal of Immunology, Baltimore

51:127-190 (Sept.) 1945

Comparison of Value of Clarase, Penicillinase and Cysteine Hydrochloride in Revealing Presence of Contaminating Organisms in Preparations of Penicillin. C M. McKee and B F. Chow—p. 127.
Immunologic Relations Between Types of Shigella Paradysenteriae (Flexner) and Other Shigellae. A. J Weil, L A Barnes and M. Binder.—p 133
Application of Quantitative Complement Fixation Test to Serum Diagnosis of Typhus Fever F M Varley and F R. Weedon—p 139.
Addition of Nitrogen from Bovine Complement to Specific Precipitates O Bier.—p 147.
Antigenic Relationship of Various Types of Shigella Alkalescens to Shigella Paradysenteriae E Neter, with technical assistance of E C Deuchler.—p. 151.
Conversion of Agglutinins and Precipitins into "Univalent" (Nonagglutinating or Nonprecipitating) Antibodies by Photodynamic Irradiation of Rabbit Antisera vs Pneumococci, Sheep Red Cells and Sea Urchin Sperm. A Tyler.—p. 157.
Experimental Studies on Yellow Fever Protection Test K C Smithburn—p 173.

Journal of Investigative Dermatology, Baltimore

6:235-278 (Aug.) 1945

Survival of Tissues at Ice Box Temperatures Elsie M Walter, H Sharlit and J C. Amersbach—p. 235
Dermatitis from Synthetic Resins L Schwartz—p 239
Isolation of Iron Pigment from Human Red Hair. P Flesch and S Rothman—p 257.
Insensible Perspiration of Skin in Hyperkeratotic Conditions Z Felsher and S Rothman—p 271

Journal of Pediatrics, St. Louis

27:1-392 (Oct.) 1945

*Glycogen Storage Disease: Observations on Pathologic Physiology of 2 Cases of Hepatic Form of Disease E M. Bridge and L. L Holt Jr.—p 299.
Spinal Cord Tumors in Children Study of 3 Cases of Ependymoma A. Nisenson and G H Patterson—p 315.
Adrenogenital Pseudohermaphroditism Treated with Stilbestrol C. B. McIntosh and W. E. Brown—p 323.
Kernicterus: Neurologic Sequelae of Erythroblastosis Fetalis J. M Docter—p 327
Percutaneous Immunization Against Diphtheria. H Vollmer and M E Wegman—p 334.
Galactosemia with Hepatic Damage: Report of Case in Infant, with Recovery. S Mellinkoff, B Roth and J. MacLaggan—p. 338.
Rheumatic Heart Disease with Associated Meningoencephalitis R. H High and E E. Aegerter—p. 343
Myositis Ossificans Progressiva: Review of Literature, with Report of Case K J Ryan.—p. 348.
*Erythroblastosis Fetalis H. R. Litchfield—p 353
Avoiding Behavior Problems B. Spock—p. 363

Glycogen Storage Disease.—According to Bridge and Holt a clinical diagnosis of von Gierke's disease or, as it is commonly called, glycogen disease cannot always be made with precision because the criteria necessary to establish the diagnosis are not clearly defined. The variations in symptoms suggest that more than one disease entity may be included under that name. The authors report 2 cases which belong to the so-called hepatic type of the disease. They believe that this form constitutes a clinical and physiologic entity. The 2 patients, a girl of 15 months and a boy of 5½ years, presented a strikingly similar clinical picture The microscopic appearance of the sections obtained at biopsy were indistinguishable from each other or from pictures published in other reports Both showed a high level of liver glycogen The fat content of the liver in both cases was normal. Observations on liver slices freshly removed at biopsy have shown an abnormal stability of the glycogen, but a satisfactory glycogenolytic response was obtained on admixture with fresh normal liver, confirming previous work that the glycogenolytic enzyme system is defective in this condition Liver slices treated with various enzyme preparations, including phosphorylase and amylase, gave results which were inconclusive as to the nature of the enzyme defect It was demonstrated that liver functions other than glycogenolysis may be affected in this disease, defective prothrombin formation and defective methylation being observed In 1 patient a severe lipemia was present at the age of 2 years, which had almost completely disappeared at the age of 6 years, suggesting that the associated disturbance of fat metabolism may be a self-limited one. An unidentified reducing substance was found, probably belonging to the pentose group, in the urine of 1 of the patients. Particular attention is called to two indirect results of the impaired glycogenolysis;

(a) an abnormal conversion of carbohydrate to fat, demonstrated by respiratory quotient studies, which leads to obesity; (b) impaired nitrogen retention, brought about apparently by excessive gluconeogenesis from protein in the effort to sustain blood sugar, a condition which may interfere with normal growth. The latter condition may be satisfactorily treated by the administration of an extra protein meal at night.

Erythroblastosis Fetalis.—The discrepancy between the relatively large number of marriages of Rh-positive men to Rh-negative women, estimated at about 13 per cent of all marriages, and the low incidence of erythroblastosis, namely about 0.1 to 0.2 per cent of births, demands some explanation. Apparently the presence of the factor in the husband and its absence in the wife are not always sufficient to cause the disease in the child. Among factors which might explain this discrepancy Litchfield mentions (1) possible variations in the permeability of the placenta, (2) that more than one pregnancy may be required to induce an adequate degree of immunization, (3) that the disease may be mild and escape recognition and (4) that men who have inherited the Rh factor from one parent only, that is, heterozygous fathers, do not transmit the Rh factor to all children. Theoretically it would seem that isoimmunization could occur in an Rh-negative child of an Rh-negative father and Rh-positive (heterozygous) mother, but it is assumed that this does not occur, because, as is well known, infants produce antibodies very poorly. Blood specimens for determination of Rh factors should be taken from the mother at the same time as blood for the Wassermann test, usually in the second or third months of pregnancy. Blood smears for erythroblastosis should be taken from the infant at the time of delivery. Patients who are likely to have repeated transfusions should be typed for the Rh factor to avoid immunizing Rh-negative persons by the use of Rh-positive blood. This is especially important in women of childbearing age to avoid the possibility of harming an Rh-positive fetus at a later pregnancy. Wiener and Wexler caution that in hemolytic anemia of the newborn transfusions of blood from the mothers are contraindicated because of the additional antibodies which would be introduced; that the father's Rh-positive blood (or that of any other Rh-positive donor) should not be used because the tissues of the infant contain enough stored antibodies to destroy any additional Rh-positive blood, and that the infant should not nurse, since antibodies may be transmitted through the colostrum and milk. They give blood from group O Rh-negative donors.

Journal of Thoracic Surgery, St. Louis

14:339-414 (Oct.) 1945

Observations on Pulmonary Arterial Pressure and Peripheral Venous Pressure Following Arterial Blood Loss. R. M. Eaton, E. W. Czebrinski and J. R. Smith.—p. 339.
*Congenital Coarctation of Aorta and Its Surgical Treatment. C. Crafoord and G. Nylin.—p. 347.
Proximal Extension of Carcinoma of Lung in Bronchial Wall. D. F. Griess, J. R. McDonald and O. T. Clagett.—p. 362.
Closed Extrapleural Pneumonolysis: Preliminary Report. J. S. Conant.—p. 369.
Abnormal Esophageal Communications: Their Types, Diagnosis and Therapy. O. A. Abbott.—p. 382.
Large Anomalous Vein ("Left Vena Cava") Encountered in Operation for Ligation of Patent Ductus Arteriosus. C. R. Lam.—p. 393.
Drainage of Cavities in Bilateral Pulmonary Tuberculosis. V. S. Randolph.—p. 395.
Mediastinal Cyst of Gastric Origin. J. D. Steele and J. Schmitz.—p. 403.
Neurofibroma of Diaphragm. K. P. Klassen, R. Patton and F. M. Bemen.—p. 407.
Self-Retaining Scapula Retractor for Thoracoplasty. K. P. Klassen.—p. 414.

Surgical Treatment of Coarctation of Aorta.—Crafoord and Nylin believed that, in patients with congenital isthmic stenosis who already possessed a well developed and satisfactorily functioning collateral system between the large arteries arising central to the coarctation and the arteries in the lower half of the body, they could keep the aorta closed at a point immediately peripheral to the left subclavian artery for a considerable period without causing danger through cutting off the blood flow to organs in the part of the body supplied by arterial blood from arteries peripheral to the aortic stenosis. The relatively poor prognosis in cases of aortic coarctation seemed to be sufficient justification for making an attempt at surgical treatment of these patients. The most important diagnostic sign of coarctation of the aorta is the increased blood pressure in the upper part of the body. Some cases of coarctation show a normal blood pressure in the arms. Every young person with hypertension should be examined for coarctation. Absence of pulsations in the popliteal artery or a lower blood pressure in the legs than in the arms should suggest coarctation. Often collateral pathways form tortuous and dilated arteries which can be seen and can be palpated over the back, especially in the interscapular region or on the lateral part of the chest in the axillas. In most cases the dilated tortuous intercostal arteries cause erosions or notchings of the ribs, which are seen in the x-ray film and, if present, they are a sign of coarctation. The authors describe 2 cases in which the Crafoord operation was performed. In both patients the operation was planned as a trial thoracotomy in order to ascertain whether the aortic wall was in a condition to permit circular suture of the vessel after resection of the stricture. If the wall had shown signs of morbidity or if, after mobilization, it seemed unlikely that the aorta could be made sufficiently mobile to allow coaptation of the resected edges without tension, after the removal of the stricture, the authors would not have continued the operation. However, the operation was completed successfully on both patients and both were in excellent health at a follow-up examination six months later.

Ohio State Medical Journal, Columbus

41:881-976 (Oct.) 1945

Prevention of Late Postpartum Morbidity. Z. J. R. Hollenbeck.—p. 905.
Human Ornithosis: Report of Case with Relapse. H. A. Freckman.—p. 914.
Urogenital Tuberculosis. V. C. Laughlin.—p. 916.
Cancer of Rectum and Pelvic Colon. W. H. Hamilton.—p. 918.
Combined Anesthesia. J. P. Fakehany.—p. 921.
Allergic Sensitivity to Sulfonamide Drugs. H. N. Holmes.—p. 923.
Idiopathic Hypertrophy and Dilatation of Esophagus. A. J. Mantilla.—p. 925.

41:977-1072 (Nov.) 1945

*Management of Rheumatic Infection. W. H. Bunn.—p. 1001.
Changing the Food Habits of Our People. Martha Koehne.—p. 1007.
Coach Leg. P. S. Ross and A. P. Ormond.—p. 1012.
Unusual Leg Ulcer with Diphtheroids. H. R. Hathaway.—p. 1014.
Bilateral Recurrent Laryngeal Paralysis (Bilateral Abductor Paralysis). J. W. McCall.—p. 1016.
*Effects of Encephalitis Occurring During Childhood on Behavior and Personality: Study of 50 Cases. J. V. Greenebaum, L. A. Lurie, B. Leichtentritt and Florence M. Rosenthal.—p. 1018.
Tuberculous Suprarenalitis. Virginia Congleton and R. J. Ritterhoff.—p. 1022.
An Eastern Doctor Visits Cincinnati. P. D. Jordan.—p. 1025.

Rheumatic Infection.—Scarlet fever or infection with the group A hemolytic streptococcus precedes by several days or longer an attack of rheumatic fever. This preliminary infection, which is designated as phase 1, is followed by a quiescent period, phase 2, which lasts from a few days to several weeks, during which an antigen-antibody reaction seems to occur. This is followed by true active rheumatic fever, phase 3, which results in a heart lesion in about three fourths of the children and in a considerable number of adults. Patients, particularly children, who recover slowly from a throat infection, especially if they are pale, perspire easily and have an evening rise of temperature, elevated white blood cell count, increase in pulse rate or accelerated sedimentation rate probably are in phase 2. It is in the hours before the activation of the streptococcus or the antigen-antibody reaction has occurred that salicylates or sulfonamides may be effective if given in moderately large doses. Although salicylates and sulfonamides are the choice drugs for the prevention of phase 1 lapsing into phase 2, penicillin may prove to be useful for patients who are sensitive to sulfonamides or who have been infected by a sulfonamide resistant organism. There is evidence that penicillin is not beneficial in the treatment of rheumatic fever; it may even be harmful. When chorea develops, phase 1 has passed so that prophylactic measures are then of no avail. From 3 to 10 per cent of patients with uncomplicated chorea develop rheumatic heart disease. Since recurrences are less likely in warm climates, patients who are in the latent stage of the disease should spend at least the first winter following an acute attack in the South and should live the rest of their lives in a warm climate if this can be arranged. Lacking this opportunity, a great deal can be done by warm clothing and avoidance of exposure to dampness, chilling and fatigue.

Encephalitis and Personality.—Greenebaum and his associates report observations on 50 children who were referred to the Child Guidance Home because of behavior disorders and personality difficulties which were found to be causally related to a previous attack of encephalitis. The patients were followed for from three to twenty-five years. The fact that there were 39 males and 11 females seems to indicate that males are more susceptible to this type of behavior and personality disorder than females. The onset of the disease was predominantly early in infancy, the bulk of the cases occurring before the age of 5 years. The onset of the behavior problems and personality changes occurred mostly below the age of 10 years. In the majority of the cases the behavior and personality difficulties appeared immediately after the onset of the disease. The virus type of encephalitis predominated in this series. Neurologic findings (pyramidal, extrapyramidal, ocular) were present in all but 9 cases. Five suffered from grand mal, 2 from petit mal and 4 presented parkinsonism. The intelligence quotient range was from 51 to 118. Only 14 were feebleminded. Of 20 children who were retested, 9 showed no change in the intelligence quotient, 1 improved and 10 deteriorated. The children can be grouped into three categories: those with behavior difficulties, the psychopathic and the psychotic. Only 9 of the 50 patients are at present adjusted.

Radiology, Syracuse, N. Y.

45:319-424 (Oct.) 1945

*Osteoid Osteoma of Bone. H. L. Jaffe.—p. 319.
*Use of Radioactive Sodium as Tracer in Study of Peripheral Vascular Disease. Beverly C. Smith and Edith H. Quimby.—p. 335.
Roentgen Appearance of Lobar and Segmental Collapse of Lung: VI. Collapse of Upper Lobes. L. L. Robbins and C. H. Hale.—p. 347.
Pantopaque Myelography: Correlation of Roentgenologic and Neurologic Findings. R. K. Arbuckle, C. H. Shelden and R. H. Pudenz.—p. 356.
Pantopaque Myelography for Protruded Disks of Lumbar Spine. M. T. Schnitker and G. T. Booth.—p. 370.
Beneficial Effects of Roentgen Therapy in Advanced Cases of Rheumatoid Arthritis: Preliminary Report. J. Borak and H. K. Taylor.—p. 377.
*Solitary Myeloma: Review of 61 Cases. L. T. Gootnick.—p. 385.
Volvulus of Megacolon Reduced During Barium Enema Examination. A. Melamed.—p. 392.

Osteoid Osteoma of Bone.—According to Jaffe an osteoid osteoma is a small, oval or roundish, nidus-like benign neoplasm of bone. It consists, in varying proportions, of osteoid trabeculae of newly formed osseous tissue and a substratum of vascularized osteogenic connective tissue. The lesion usually does not exceed a centimeter in its greatest dimension and may lie within the spongiosa (perhaps at or near an articular surface) or against the inner surface of the bone cortex, or even within the cortex. Though the nidus-like focus is the osteoid osteoma per se, the total abnormal area in the affected bone may be large, since there may be a perifocal zone of bone thickening or sclerosis extending for a considerable distance beyond the nidus. The author reviews observations on 62 cases. The condition is found chiefly in males, 42 of the 62 cases being in males and the age in all but 2 being less than 30. The roentgenographic picture of osteoid osteoma has two aspects, manifestation of the nidus or osteoid osteoma proper and that of the reaction which it has incited in the surrounding tissue. The nidus is a small, oval or roundish, relatively radiolucent or (less frequently) radiopaque area, often surrounded by a more or less opaque or dense shadow reflecting the reactively thickened or otherwise altered zone of neighboring bone. While persistent local pain and a sharply localized point of tenderness are useful in the diagnosis, it is the roentgenographic picture that constitutes the most valuable diagnostic guide. Removal of the lesion is followed by prompt and lasting disappearance of the complaints. Complete removal is important, since otherwise there may be recurrences. Five typical case histories are reported and illustrated with roentgenograms and photomicrographs.

Radioactive Sodium as Tracer in Peripheral Vascular Disease.—Smith and Quimby direct attention to the use of artificially radioactive elements as tracers in biologic and physiologic studies. Substances can be tagged by mixing with stable atoms a relatively small number of radioactive ones. The tagged atoms continue to be mingled with the normal ones administered at the same time in the same proportions throughout their whole course through the body except for radioactive decay, which can be allowed for if necessary. Radioactive sodium N_{24} is such an isotope. Following its introduction into the body, its transfer by the blood and its arrival at any part can be observed by the use of a Geiger-Müller counter. The authors injected intravenously a few cubic centimeters of isotonic solution of sodium chloride containing the desired amount of the radioactive isotope and traced the circulation of the blood by following the sodium it carried. Studies of this type have now been carried out on more than 200 patients with peripheral vascular disease. The method provides a simple and objective means of determining the blood supply to an extremity through either the main arteries or the collateral circulation. The observations obtained by this method have been especially helpful in demonstrating the competence of the collateral circulation when the main arteries are partially or totally occluded. The method has been of special value in determining the advisability of persisting in conservative as compared to more radical local surgery, and particularly in determining the site of amputation at which healing might be expected. In this capacity it has justified the clinical attitude that in many cases of amputation for gangrene in peripheral vascular disease the knee joint can be saved. Since no toxic material is injected with the sodium, and the accompanying dose of radiation is considerably less than 1 roentgen for each test, there is no contraindication to its repetition at reasonable intervals. In this manner it serves to follow progress of the disease or to test the efficacy of therapeutic measures.

Solitary Myeloma.—The treatment and prognosis of multiple myeloma are usually regarded as extremely discouraging. In recent years numerous reports of solitary myeloma have appeared, in many of which x-ray therapy judiciously carried out delayed the progress of the disease, produced relief of symptoms and prolonged life. Gootnick says that, among 24 cases of myeloma seen in the University of Chicago Clinics, 2 examples of solitary lesions have been observed, both of which responded excellently to x-ray therapy. These 2 cases, together with 59 similar cases of solitary myeloma collected from the literature, were studied with regard to the duration of life, the effects of x-ray treatment and the course of the disease as compared to that of multiple myeloma. The diagnosis in all these cases had been confirmed by biopsy and microscopic examination. The x-ray appearance is of two main types. One type appears as a cystic, trabeculated lesion closely resembling giant cell tumor. The second is a frankly osteolytic lesion closely resembling metastatic carcinoma. The incidence of the disease was highest in the 50 to 60 year age group, in which 26 cases were found. Males were predominantly affected, accounting for 41 cases. The ilium, femur, humerus and thoracic vertebrae were the sites most frequently involved. Bence Jones protein was found initially in only 10 per cent of the 41 cases tested. X-ray therapy following biopsy or curettage was carried out in 43 cases and appears to be the treatment of choice. It gave relief of pain and prolonged life several years beyond the average for multiple myeloma. The average duration of life in the treated cases followed until death was seven years from the onset of symptoms and three years and a half from the original admission.

Rocky Mountain Medical Journal, Denver

42:641-728 (Sept.) 1945

Prepayment Medical Care Plans: Experience of Michigan State Medical Society. L F. Foster.—p. 657.
Factors Influencing Prognosis in Acute Perforated Peptic Ulcer Based on Review of 59 Consecutive Cases at Colorado General Hospital. R. H. Anderson, G. L. Allen and G. B. Packard.—p. 661.
Current Views on Diagnosis and Treatment of Vitamin Deficiencies. M. M. Wintrobe.—p. 665.
Tuberculosis Case Finding in El Paso County. E. N. Chapman.—p. 670.
Carcinoma of Breast: Study of 37 Cases. G. B. Kent and K. C. Sawyer.—p. 672.

1:729-816 (Oct.) 1945

Michigan Plan. G. A. Unfug.—p. 745.
Michigan's Experience with Commercial Medical Radio Broadcasting. A. S. Brunk.—p. 753.
Progressive Public Relations by a State Medical Society. E. F. Sladek.—p. 754.
Discussion on Planning Panel. P. L. Ledwidge.—p. 756.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:451-484 (Oct. 6) 1945

Arterial Aneurysm Following Injury to Iliac Vessels: *Report of 2 Cases, with Commentary on Large Transfusions.* H. Agar, J. Rowlands and W. H. Ogilvie.—p. 452.
Cutaneous Schistosomiasis Involving S. Hematobium Eggs. K. O. Black.—p. 453.
Methods for Determining Plasma Proteins: Value in Group of Boys Aged 14 to 15. R. P. Cook, D. M. Keay and D. G. McIntosh.—p. 456.
Early Treatment of Bell's Palsy. H. P. Pickerell and C. M. Pickerell.—p. 457.
Osteomyelitis of Skull Due to Salmonella Typhi. J. M. Lever, G. B. Barker.—p. 459.

2:485-520 (Oct. 13) 1945

Influence of Galvanic Stimulation on Muscle Atrophy Resulting from Denervation. E. C. S. Jackson and H. J. Seddon.—p. 485.
Changes in Human Voluntary Muscle in Denervation and Reinnervation. R. E. M. Bowden.—p. 487.
Value of Supplements of Vitamin C in Preventing Lactational Mastitis. A. A. Fulton.—p. 488.
Acute Idiopathic Porphyria. G. Discombe and J. L. D'Silva.—p. 491.
*Simmonds's Disease Due to Postpartum Necrosis of Anterior Pituitary: Carcinoma of Stomach. R. T. Cooke.—p. 493.
Hemolytic Disease and Congenital Syphilis in Siblings: Role of Rh Factor. Marjory N. McFarlane.—p. 494.
Glandular Fever with Neutropenia. G. Slot and F. D. Hart.—p. 495.

Simmonds's Disease.—The patient observed by Cooke, a woman aged 59 with increased fatigue and loss of weight for a period of a year, anorexia and numbness of the fingers since an attack of influenza in 1942, and epigastric pain, had had four pregnancies. At the birth of the last child, when the patient was 32, there was a severe hemorrhage and she was in bed seven weeks because of weakness. After the delivery she did not lactate, and the breasts became very small. Menstruation ceased at age 33. Loss of hair was soon noticed (especially axillary and pubic), and the patient gained weight. There developed sensitivity to cold, becoming more pronounced during the last year. At examination she presented the picture of cachexia. An insulin sensitivity test gave further evidence of a lesion of the anterior hypophysis. Urinary 17-ketosteroid assay added weight to this diagnosis. The patient was given no specific treatment and slowly weakened and died of cachexia and heart failure. Necropsy revealed a general splanchnomicria and an "early" pyloric carcinoma, which was not expected. It is problematic whether this was a coincidence or another result of the pituitary lesion.

Journal of Laryngology and Otology, London

60:43-90 (Feb.) 1945

Otogenic Brain Abscess. C. A. Hutchinson.—p. 43.
Unusual Intracranial Complications of Otitic Origin: Report of 3 Cases. E. G. Collins.—p. 56.
Low Voltage Galvanization in Sinusitis. E. Kupfer.—p. 68.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

52:313-416 (Aug.) 1945

Placenta Previa: Study of 174 Cases. C. H. G. Macafee.—p. 313.
Influence of Minor Degrees of Failure of Fusion of Müllerian Ducts on Pregnancy and Labor. S. Way.—p. 325.
Effects of Injection of Human Semen into Female Animals. P. Baesich, A. Sharman and G. M. Wyburn.—p. 334.
Influence of Social and Economic Factors on Stillbirths and Neonatal Deaths. D. Baird.—p. 339.
*Recurrence Rate of Urethral Caruncles P. Malpas.—p. 367.
Granulosa Cell Tumor of Tubular and Adenomatous Type. D. Dougal.—p. 370.
Chemotherapy in Obstetrics and Gynecology. M. Kenny.—p. 372.

Recurrence Rate of Urethral Caruncles.—Malpas reviewed 85 cases of urethral caruncle which had been treated over a period of fifteen years. Excision of the caruncle and of the caruncle bearing area on the posterior lip of the urinary meatus was the procedure adopted in 68 cases. In 22 of these cases the caruncle returned, in 18 instances once, in 2 instances twice, in another three times, in another four times. This seems to indicate that recurrence of a caruncle will follow excision in about one third of the cases so treated. The presence and treatment of an associated lesion such as infection or prolapse did not seem to have any bearing on the incidence of recurrence. The period of recurrence ranged between one and fifteen years, more than half occurring within five years. Recurrence was not seen in any of 15 cases treated by coagulation diathermy. This seems to indicate that coagulation diathermy is a more suitable method than excision. It is possible that the fibrosis following the coagulation inactivates the caruncle bearing area of the posterior meatal lip. An electrocautery was used to burn off the caruncle base after excision in 6 cases, but recurrence occurred in 3 of these. The effect of a cautery apparently is not deep enough to prove effective. Radium was used experimentally in 3 cases. The radiosensitivity of a caruncle is not greater than that of the normal urethral mucosa and as a primary method of treatment it is not advisable, though it has a limited scope in the treatment of recurrent caruncle.

Medical Journal of Australia, Sydney

2:293-324 (Sept. 8) 1945

Observations on Prevention and Treatment of Tuberculosis. H. Roche.—p. 293.
Clinical Aspects of Tuberculosis. H. Roche.—p. 299.
*Tuberculous Lung Cavity and Monaldi's Closed Suction Drainage. H. Roche.—p. 307.

Tuberculous Cavity and Monaldi's Suction Drainage.—Roche believes that Monaldi's closed suction method has a definite though limited place in the treatment of pulmonary tuberculosis. In some large cavities its use will make more certain the success of thoracoplasty and diminish the risk of postoperative spread. Occasionally the treated cavity will close and remain healed. If means can be found to produce permanent occlusion of the draining bronchi, suction drainage will have a wider field of successful application and subsequent thoracoplasty will be avoided in many cases. Its use has provided a clearer understanding of the pathogenesis and healing of cavities.

Transactions Royal Soc. Trop. Med. and Hyg., London

39:1-90 (Sept.) 1945

Tsetse Fly Control and Sleeping Sickness in Sudan. A. R. Hunt and J. F. E. Bloss.—p. 43.
Meridi Outbreak of Sleeping Sickness. J. F. E. Bloss.—p. 59.
Vincent's Infection in Northern Peru. K. V. Earle.—p. 77.
Spinal Anesthesia in Treatment of Tropical Ulcers. E. W. Price.—p. 83.
Staining Method for Malaria Parasites in Thick Blood Films. J. C. B. Fenton and J. Innes.—p. 87.

Confinia Neurologica, Basel

6:1-56 (No. 1) 1944

Nosographic Limits of Cerebrotrigeminal Angiomatosis (Sturge-Weber-Krabbe). Denise Louis-Bar.—p. 1.
*Cerebral Metastases of Ovarian Struma. L. de Bakay Jr. and T. de Lehoczky.—p. 22.
Study of Neuralgia of Glossopharyngeal Nerve with Regard to Part Played by Age, Sex and Localization. M. Schachter.—p. 32.
Pathophysiology of Vegetative Functions and Their Relationship to Psychopathology. F. Georgi.—p. 37.

Cerebral Metastases of Ovarian Struma.—Cerebral metastases of ovarian struma in a woman aged 57 were observed by de Bakay and de Lehoczky. A dermoid cyst containing thyroid tissue was removed from the ovary of the patient. Six to eight years after this operation there appeared indistinct symptoms such as fatigue and a slight gait disturbance; later hyperthyreosis and signs of a supratentorial neoplasm appeared. Mental disturbances appeared at the same time. A gradually developing left side hemiparesis and bilateral papilledema with punctiform hemorrhages were observed in the absence of sensory disturbance. These symptoms suggested a frontoparietal tumor on the right side. When ventriculography was attempted, two incisions in the occipital region revealed a small neoplasm in the occipital bone. It consisted of thyroid tissue and was considered as a metastasis of the previous ovarian struma. This concept was supported by the identical microscopic structure of the ovarian struma and the bone tumor. The case differed from instances presenting the usual syndrome of metastatic brain tumor in that bilateral pyramidal symptoms and impairment of consciousness were observed as late as two weeks prior to death. It is probable that there was another tumor in the right frontoparietal region, a metastasis such as that found in the occipital bone.

Revista Chilena de Pediatría, Santiago

16:745-815 (Aug) 1945. Partial Index

*Penicillin in Congenital Syphilis in Infants J Meneghello, J Rosselot and O Undurraga —p 784

Penicillin in Congenital Syphilis.—Meneghello and his collaborators administered penicillin to 3 infants aged 8, 3 and 6 weeks with congenital syphilis The clinical and roentgen diagnosis was verified by the Kahn serologic test. Two of the patients had acute glomerulonephritis with anasarca and venous hypertension. The drug was administered intramuscularly every three hours, with the total dose between 30,000 and 50,000 Oxford units for each kilogram of body weight. Clinical, roentgenologic and serologic cure was obtained in all cases The renal disease also was controlled. Penicillin in adequate doses is harmless and effective in the treatment of congenital syphilis of infants.

Acta Medica Scandinavica, Stockholm

121:1-113 (May 14) 1945. *Partial Index*

*Hematologic Studies in Tuberculosis Variations in Blood Cells of Guinea Pigs Inoculated Intracutaneously or Percutaneously with BCG Vaccine. K. Birkhaug and H. Schjelderup —p 1
Effect of Insulin Coma and Awakening from It on Amino Acid N in Plasma. C. Trolle —p. 19.
Duration of Life of Erythrocytes in Hemolytic Jaundice Determined Through Transfusion Experiments. A. Kirkegaard and Gertrud Kirkegaard —p. 24.
Intermittent Claudication and Vascular Spasm· I Is Vascular Spasm a Contributory Cause of Intermittent Claudication in Patients with Structural Disease of Arteries? T. Lindquist —p 32
Contribution to Pathogenesis of Amyotrophic Lateral Sclerosis E Ask Upmark —p. 49.
On Hereditary and Familial Conditions in Gastric Ulcers and Duodenal Ulcers T. Sällström —p 57.
"Alcacid Reaction": New Qualitive Test for Serum Globulins Preliminary Report. J. Waldenström —p 68
*Polyneuritis Following Sulfanilamide Therapy. R Müller —p 95

Hematology in Tuberculosis.—Birkhaug and Schjelderup report a hematologic study on comparable groups of normal and tuberculin negative guinea pigs immunized with BCG by Rosenthal's multiple puncture, Weill Hallé's scarification and Wallgren's intracutaneous vaccination methods. Fifty-eight days after vaccination, when all the animals had become allergic, all of the vaccinated animals and the control group were inoculated intraperitoneally with 0.0001 mg. of a highly virulent strain of human tubercle bacilli The intracutaneous tuberculin test with 10 mg. of tuberculin was performed on the vaccinated animals and on the control group By comparing the control group tuberculin reactions with the immunized group reactions it appeared that the tuberculous infection developed more slowly in the multiple puncture group, a little more rapidly in the intracutaneous group and still more rapidly in the scarified group. All the surviving animals were killed 103 to 110 days after the inoculation with the virulent strain. The macroscopic scoring of the tuberculous involvement in the vaccinated and in the control animals and the exact quantitative assessment of the volume and weight of the individual organs and glands demonstrated that the multiple puncture group presented the smallest degree of tuberculous lesions, the scarification and intracutaneous groups presented a higher degree, while the control group showed much greater spread of tuberculous lesions than the BCG immunized groups The nonvaccinated and similarly infected control guinea pigs showed that significant abnormal deviations in monocytes, monocyte-lymphocyte ratio and leukocytic index of neutrophils, lymphocytes, monocytes and total white cells register most accurately the advancing tuberculous disease The blood picture in the animals immunized with BCG parenterally and superinfected with virulent tubercle bacilli revealed a significantly retarded abnormal deviation in the monocytes, monocyte-lymphocyte ratio and leukocytic index. The multiple puncture BCG vaccination method, however, produced a slightly more retarded abnormal blood picture than the scarification and intracutaneous BCG vaccination methods In the same group of animals the hematologic study substantiates the pathologic data that parenteral BCG vaccination produces considerable resistance against a virulent tuberculous infection.

Polyneuritis from Sulfanilamide.—Müller reports 7 cases of polyneuritis following chemotherapy in 2 women and 5 men. The patients, who were admitted to the neurologic clinic of the Serafim Hospital in Stockholm, were between the ages of 3 and 56 years. Two of them were treated with sulfanilyldimethylsulfanilamide (uleron), 1 with sulfanilamide, 2 with sulfathiazole, 1 with sulfanilamide, sulfapyridine and sulfathiazole and 1 with sulfapyridine In the cases of polyneuritis caused by sulfanilamide, sulfapyridine and sulfathiazole the symptoms were more extensive and more pronounced than in the cases caused by sulfanilyldimethylsulfanilamide and sulfamethylthiazole. In addition there was less motor disturbance than in polyneuritis caused by sulfanilyldimethylsulfanilamide and sulfamethylthiazole. The incidence of polyneuritis is probably greater after treatment with sulfanilyldimethylsulfanilamide and sulfamethylthiazole than with the administration of other nonmethylated sulfanilamide compounds. The possibility that in some cases polyneuritis may result from a purely toxic damage to the nerve tissues cannot be excluded In general, an allergic reaction seems to be responsible for its occurrence, as polyneuritis may result from serum administration. Previous damage to the nervous system, achylia and thiamine deficiency may be predisposing factors which render the patient susceptible to polyneuritis. Muscular exertion may cause a latent polyneuritis to become manifest To prevent the occurrence of polyneuritis, chemotherapy should be practiced for as short a period as possible. Intermittent administration of the drug should be avoided. Methylated preparations should not be employed. Patients who on the occasion of previous treatment presented signs of hypersensitivity such as drug fever or exanthems should be desensitized before repeating chemotherapy. Polyneuritis due to sulfonamide administration suggests that further chemotherapy should not be employed

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Toxic Diffuse Goiter After Thyroid Treatment.—Bruun reports 18 cases of thyrotoxicosis developing in patients who were receiving thyroid preparations In the same period a total of 485 patients were treated for thyrotoxicosis. It appears therefore that patients with thyrotoxicosis due to thyroid therapy represent 3.7 per cent of the total number of patients with this condition All the 18 patients were women, 10 of them in the climacteric age group In 11 of the 18 cases the thyroid treatment was instituted for simple obesity. Three of the 18 patients showed a familial disposition to toxic diffuse goiter since among their nearest relatives unquestionable instances of this condition were ascertained Two of the 18 patients had a simple goiter prior to the thyroid treatment, and 3 had hypothyroidism. Thus, disposition to thyroid disease could be demonstrated in 8 patients. Pronounced unilateral exophthalmos was found in 4 patients Since this symptom has been described also in 3 of the previously reported 28 cases of toxic diffuse goiter after thyroid therapy, pronounced unilateral exophthalmos in patients with thyrotoxicosis should raise suspicion of a preceding treatment with thyroid substance. In Denmark the yearly consumption of thyroid preparations amounts to 6,600,000 tablets (1 tablet = 100 thyroid units). This is calculated roughly to be at least five times greater than the amount required by the myxedema patients living in this country. The greater part of the thyroid preparations is probably consumed by other patients, chiefly by those with obesity. Thyroid therapy in obesity always entails a certain risk and is therefore once more condemned

Book Notices

A Primer of Electrocardiography. By George Burch, M.D., F.A.C.P., Associate Professor of Medicine, Tulane University School of Medicine, New Orleans, Louisiana, and Travis Winsor, M.D., Instructor in Medicine, Tulane University School of Medicine. Cloth. Price, $3.50. Pp. 215, with 235 illustrations. Philadelphia: Lea & Febiger, 1945.

This book differs from other recently published books on electrocardiography in that it is more concerned with the basic principles and concepts of electrocardiographic interpretation than with exhaustive description of empirical findings. If used in conjunction with other monographs on the subject, as the authors recommend, it will fulfil its purpose and offer the reader a concise outline of the theory of electrocardiography, mainly as formulated by F. N. Wilson and his co-workers and elaborated by Richard Ashman, R. H. Bailey and their co-workers. The more recent contributions of these authors, like those dealing with the ventricular gradient, are incorporated.

The particular approach of the authors may explain why certain problems are not dealt with although they are of utmost practical importance; thus the variety of the patterns of left heart strain is not discussed and the importance of the chest leads for the diagnosis of left heart strain is neither stressed nor illustrated. We cannot agree with the statement that the electrocardiographic picture of acute massive pulmonary embolism lasts only a few hours; in our experience the changes may persist for many days or even weeks. The misleading terms of complete, incomplete and partial bundle branch block, if used, should be defined as being purely electrocardiographic and not anatomic or physiologic. Exception can be taken to the presentation of some problems in the chapter on disorders of the heart beat. No mention is made of the importance of excluding nonconducted auricular premature systoles before diagnosing sinoauricular block. The authors do not mention that in sinoauricular block the pause may be less than two normal cycles. They discuss ventricular escape but do not mention nodal escape with aberrant ventricular conduction; the only kind of septal premature beats that can be diagnosed, namely those occurring in the presence of bundle branch block, is not mentioned. A number of conditions other than premature beats and auriculoventricular block responsible for bigeminal rhythm are not discussed. In describing parasystole the authors fail to name its principal feature, the varying coupling of the premature beats. The mechanism of dissociation is not sufficiently explained; nothing is said about its occurrence in the presence of partial block.

The importance of multiple chest leads for the recognition of myocardial infarction is well demonstrated and we can fully subscribe to the statement that "there is a greater need to take the term exploring electrode literally and really to explore the various regions of the heart in order to locate precisely the site of infarction and to estimate its size."

Essentials of Histology. By Margaret M. Hoskins, Ph.D., and Gerrit Bevelander, Ph.D. Cloth. Price, $3.50. Pp. 240, with 137 illustrations. St. Louis: C. V. Mosby Company, 1945.

This book was originally published as Hoskins and Bevelander's *Outline of Histology*. Its purpose is to describe for the student the most important morphologic characteristics of the tissues and organs, leaving to the individual teacher the task of building on this foundation "such superstructure of detail and theoretical material as the conditions of his course permit." The result is simply an enumeration of morphologic data. Lacking are the functional correlations and developmental relationships which make the material come to life. Whether or not such a book fulfils a need depends on the character of the course in histology. In general, for medical students, more will be required. Certain improvements have been made in the original Outline of Histology. The illustrations are better and are labeled in more detail; several new ones have been added. The section on dental histology, which constituted the whole second part of the outline, has been much shortened. The present work includes new sections on the brain and on the general sense organs, and a separate chapter on glands. Not many teachers in American medical schools will be satisfied that this book contains the "essentials of histology."

The Cerebrospinal Fluid Total Protein in the Psychoses. Studies from the Central State Hospital, Indianapolis, Indiana. Vol. 10. Max A. Bahr, M.D., Superintendent. Walter L. Bruetsch, M.D., Clinical Director. [Collected Reprints.] Cloth. Various pagination. Indianapolis, Indiana: Central State Hospital, 1942.

This is not a real monograph. Three papers, one by Bruetsch, Bahr, Dieter and Skobba, the other by Bruetsch, Bahr, Skobba and Dieter and a book review by Bruetsch have been bound together. These papers are all related to the subject indicated by the title. The contents of the first two papers are rather repetitious and the book review has little bearing on the question. The only value of the contribution is that a systematic report on the spinal fluid findings of all the patients newly admitted to the Central State Hospital has been made. This included 2,823 examinations and excludes the syphilitic psychoses. The patients were admitted during a ten year period from 1930 to 1940. An increase in the spinal fluid protein was found in 5 per cent of the male and 3.2 per cent of the female patients suffering from dementia precox, 5.2 and 3.8 per cent respectively of the manic-depressive group, 4.9 and 4.7 per cent of the involutional psychoses, 25.4 and 16.2 per cent of the cerebral arteriosclerotic and finally 12.7 and 2.9 per cent of the senile psychotic. The theory of the reasons for these findings is discussed in some detail but no strikingly new conclusions are reached. The work conceivably would have more weight and be more convincing had a comparison been made between the findings in these and in 3,000 normal persons. It is factual that the Pandy test and the total protein may easily be misinterpreted, because even a normal spinal fluid may seem to show an increase in protein. This may be due to the manner in which the spinal puncture is performed. If the needle is inserted too far and the venous plexus on the anterior wall of the spinal canal is irritated, an increase of protein may result. This is not a matter of disease but rather a result of the method of obtaining the fluid. Psychotic men are generally much more resistive than psychotic women. Perhaps this explains the striking difference in the findings between the sexes.

Fractures & Orthopaedic Surgery for Nurses and Masseuses. By Arthur Naylor, Ch.M., M.B., M.Sc., Resident Surgical Officer, Westwood E. M. S. Hospital, Bradford, England. Foreword by Ernest Finch, M.D., M.S., F.R.C.S., Professor of Surgery, University of Sheffield, Sheffield, England. Cloth. Price, $5. Pp. 288, with 243 illustrations. Baltimore: William Wood & Company, 1945.

The author has written this book to help those who devote themselves to the nursing of traumatic and orthopedic cases. The success of orthopedic surgery is dependent on the knowledge, skill and care of the nurses and physical therapists to whom after-care and treatment is delegated. With the present crowded curriculum, the student nurse has often only a bare minimum of instruction in orthopedic surgery. In spite of this about one fifth of her surgical work will be concerned with this specialty. This book is written to show the nurse how the principles are applied in orthopedic surgery and as a supplement to her lectures in surgery. The author emphasizes the three essentials of treatment, prevention of deformity, correction of deformity and maintenance of correction; "the greatest of these" is prevention.

Orthopedic surgery must be distinguished from cults such as osteopathy and chiropractic surgery. Osteopathy is based on the theory that structural defects of the body are the predisposing cause of disease, and treatment is directed primarily to the rectification of these by manipulative methods. It must be added, however, that no one has demonstrated the alleged structural defect or subluxation either by roentgenograms or at postmortem examination. Chiropractic treatment postulates that displacements of the vertebrae produce pressure on the nerves and prevent the free flow of the "nerve force" which is essential for the well-being of the body. These "displacements" are corrected by manipulation without anesthesia. Again, radiology and pathology fail to substantiate the presence of the alleged lesions.

Operative measures should be regarded as incidents and not as the essential part of a long-term plan of treatment, while attention to minute details is essential to a successful outcome. Rehabilitation is the mechanism of placing the patient in a position to pursue his former or equivalent occupation by means of surgery, nursing, physical therapy and psychologic treatment and requires cooperation between surgeon, nurse, masseuse, patient and employer. The book contains chapters on orthopedic apparatus, operating room technic, methods of correction of deformity, amputations, fractures and dislocations, diseases of bones and joints, diseases of joints, disorders of the soft tissues, congenital deformities, disorders of the epiphyses, peripheral vascular lesions, paralyses and disorders of the spine and foot.

Careers in Safety: Choosing a Vocation in the Field of Accident Prevention. By Herbert J. Stack, Ph.D., Director, Charles C. Hawkins, Ph.D., Research Associate, and Walter A. Cutter, Ph.D., Administrative Assistant, Center for Safety Education, New York University, New York. Kitson Careers Series, edited by Harry D. Kitson, Ph.D. Cloth. Price, $1.50. Pp. 152. New York & London: Funk and Wagnalls Company, 1945.

This book is useful in vocational guidance. It describes the work of promoting safety and discusses in some detail the work of the safety engineer, control of automobile traffic, principles in safety education, industrial hygiene and occupational diseases, principles in private safety organizations and in the insurance business, working with government agencies and accident prevention in the armed forces. It has a chapter on getting along with people and a closing chapter somewhat in the nature of a sales talk which deals with the challenge of careers in safety. There is an index to jobs in safety which refers back to the preceding context and does not, as might be supposed, actually list jobs. The book is documented with references for the several chapters. For the vocational counselor this should be an interesting and worth while production.

The Dietary of Health and Disease. By Gertrude I. Thomas, Assistant Professor of Dietetics, University of Minnesota, Minneapolis, Minn. Fourth edition. Cloth. Price, $3.50. Pp. 308, with 10 illustrations. Philadelphia: Lea & Febiger, 1945.

The fourth edition of this textbook on nutrition for nurses includes the most recent scientific contributions in this field, particularly in the rapidly developing work on vitamin and protein nutrition. The author gives sufficient information on each subject to provide the reader with a substantial understanding but does not burden with details. Perhaps for this reason an unusually extensive coverage of the many topics related to preventive and therapeutic nutrition could be made. The style of presentation is on a high scientific level, with discussion supported by facts and figures. The number of recipes given is excessive for a textbook, however. The arrangement of the material may be open to some criticism, since a better separation might have been made under the headings of fundamentals, foods and dietary management of the sick. The information given under all chapters is aimed at being practical. Under discussion of vitamins a commendably clear distinction is made between those of proved value in human as compared to animal nutrition. In general only the highlights of special dietetic therapy are given, as should be in a book of this type, although the details for the diabetic regimen are rather extensive. The information given for diet in skin conditions could well be omitted. The volume can readily be recommended as a reliable nutrition textbook for nurses, particularly as one of lasting usefulness because of the practical information and numerous tables contained in it.

Everyday Psychiatry: Concise, Clinical, Practical. By John D. Campbell, M.D., Commander, M.C., U.S.N.R. Designed for Practitioners and Students. Fabrikoid. Price, $6. Pp. 333. Philadelphia, London & Montreal: J. B. Lippincott Company, 1945.

The author sets out to present psychiatry to practicing physicians, medical students and social workers through a systematic approach of borderline mental conditions which constitute the bulk of every specialist's practice rather than by lengthy accounts of the rarer and relatively hopeless psychotic. But on page 3 he explodes the following bomb: "The essence of this work is that human nature expresses itself through four basic personality traits and two secondary personality factors. Environment, which has been overemphasized in psychiatry, is the medium in which the basic personality factors react. These traits are inherited, constitutional and immutable and are not subject to change by environment, education or training. The four basic personality factors are intelligence, conscience, emotional reaction and psychosexual development." Then "Secondary to these four basic personality attributes are two other factors which are not directly inherited and constitutional but develop as a corollary of, or as a compensation for, any deficiency or overdevelopment of the basic traits. These secondary characteristics are sociability and special modes of adjustment." Later the author juggles intelligence, conscience, emotional stability and psychosexual development in percentages to indicate the various innumerable potential personality types as the basic traits combined in infinite permutations. The resultant personality type is immutable. Such are the basic concepts from which our general practitioners are to understand the everyday problems of human nature in health and sickness! A more reactionary backward basis in these days of progressive dynamic psychiatry cannot be conceived. This book is a powerful example of the difficulty in creating badly needed psychiatric knowledge among medical students and doctors. The articulate members of the psychiatric speciality plunge backward; those who have much to offer are too busy doing research, teaching and caring for patients to write the sorely needed textbooks.

Organic Chemistry with Applications to Pharmacy and Medicine. By Eldin V. Lynn, Ph.D., Professor of Chemistry, Massachusetts College of Pharmacy, Boston. Second edition. Cloth. Price, $4.50. Pp. 355. Philadelphia: Lea & Febiger, 1945.

This textbook follows the traditional plan of organization but, in addition, includes discussion of special compounds of interest to pharmacy and medicine and emphasizes those usually discussed by the abbreviations U. S. P., N. F. or N. N. R. Although the book adequately fulfils its special function in applying organic chemistry to pharmacy, it leaves much to be desired as a textbook of organic chemistry for premedical students when compared with other recent volumes, for numerous opportunities to relate organic materials to medicine are neglected. Mention of the relation of compounds and reactions to specific roles in medicine or metabolism are unfortunately omitted in many cases. Vitamins are discussed in various sections rather than as a group of compounds of importance to organisms. The questions at the end of each chapter are a desirable supplement. However, one desirable feature of brief textbooks, the inclusion of supplementary references to other books and the current literature, is confined to only one page at the end of the book. Conditions of a reaction so important in organic chemistry would be better emphasized if the chemical equations included one or two of the more important conditions as is done in other textbooks.

Our Inner Conflicts: A Constructive Theory of Neurosis. By Karen Horney, M.D. Cloth. Price, $3. Pp. 250. New York: W. W. Norton & Company, Inc., 1945.

The physician who has of recent years become more and more aware of the importance of psychopathology in medicine is bound to have been impressed with the fact that the extremist of the anatomic wing has little to contribute to psychopathology. He must also have felt that it is the anthropologist, the sociologist, the psychologist and the biologist who have the most influence on psychiatry and that the descriptive, impressionistic approach to medicopsychologic problems has seen its day. There is a great deal that is interesting, sparkling and philosophically even inspiring in many a page of Jung, Adler, Wilhelm Reich or Karen Horney but there is little that the psychologic therapist can actually learn from them. Karen Horney's latest contribution to her divergences from Freud, like her previous ones, is written with emphasis and serenity, if not clarity; it makes pleasant reading but it reveals little of the psychobiologic nature of man and of the ways and means to treat and influence that which is psychopathologic.

Heintz. By Alan Lake Chidsey. Cloth. Price, $1. Pp. 155, with illustrations by F. Moylan Fitts. Kingsport, Tennessee: Southern Publishers, Inc., 1945.

In every way the desk soldiers get a pretty thorough going over by the humorists. Heintz did his service in the War Department. Col. Francis M. Fitts, who provides the illustrations, worked with the author; together they found a good deal of fun in the job of soldiering in Washington. Physicians who have met Dr. Fitts in his conduct of the medical aspects of the Army Specialized Training Program know that he brings to the project a considerable artistic talent, and they will enjoy this book.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ADMINISTRATION OF IRON BY PARENTERAL INJECTION

To the Editor:—In the June 1, 1940 issue of The Journal, in an article on the therapy of anemia, page 2207, it is stated that iron by injection is useless and even toxic. Several years before I discontinued the use of iron by the parenteral route in hypochromic anemia, preferring liver extract when it became available. In *Hospitalstidende* (May 19, 1944, p. 927) Sven Dahl comments favorably on the effectiveness of iron intravenously as well as intramuscularly. Would you explain this apparent paradox?

W. A. W. Switzer, M.D., Ridgway, Pa.

ANSWER.—There can be no doubt about the fact that parenterally administered iron is therapeutically effective in the treatment of hypochromic anemias. Available evidence indicates that all of the injected iron is utilized by these patients and converted into hemoglobin. At the same same time the parenteral administration if iron is not practical because it frequently is attended by severe toxic reactions.

The toxic manifestations include nasal stuffiness, edema of the face and tongue, inflammation of the conjunctivas with blurring of vision, paresthesias, palpitation, nausea, vomiting, transient fall in blood pressure often to an alarming degree, chills and fever, and a profound sense of weakness. Frequently the vein into which injection is made becomes thrombosed. Goetsch, Moore and Minnich (*Blood*, January 1946) describe these reactions in considerable detail; they used colloidal ferric hydroxide or colloidal ferric oxide for their studies. The severity of the toxic manifestations was dependent to some degree on the amount of iron given and the speed of injection; but some patients experienced undesirable effects after only 15 or 20 mg. Similar but milder reactions were observed by Heath, Strauss and Castle (*J. Clin. Investigation* **11:**1293 [Nov.] 1932) following the intramuscular injection of 6 to 32 mg. of iron as iron citrate green. Ferrous ascorbate may possibly be better tolerated than are the other preparations mentioned, but it too produces toxic changes when administered in large enough doses to be therapeutically effective.

The following calculations serve to illustrate how much iron must be injected to correct an anemia: This is often not appreciated. If a woman with hypochromic anemia has an initial hemoglobin level of 8 Gm. per hundred cubic centimeters and it is assumed that her normal hemoglobin value is 13 Gm., then her hemoglobin must be increased by 5 Gm. per hundred cubic centimeters of blood. If her total circulating blood volume, furthermore, is assumed to be 5,000 cc., there must be a total increase of 250 Gm. of circulating hemoglobin. Since hemoglobin contains approximately 0.334 per cent of iron, 835 mg. of iron is necessary to bring about this much hemoglobin formation. Twenty-four injections would be required if 30 mg. of elemental iron should be given at each administration. Goetsch and her associates did succeed in giving this total amount of iron (as much as 1,400 mg.) at one single injection by intravenous drip to patients with hypochromic anemia. Dramatic reticulocyte responses were obtained and the rate of hemoglobin regeneration was as rapid as 0.27 Gm. per hundred cubic centimeters daily, but the reactions were so severe as to be alarming and in several patients the systolic blood pressure fell as low as 50 mm. of mercury.

It is conceded that an occasional patient cannot tolerate iron salts by mouth. This is particularly true for persons with ulcerative colitis or for patients on whom a colostomy or ileostomy has been performed. Under these circumstances, however, iron may safely be given by transfusion. Until less toxic iron preparations are found for parenteral injection, it is certainly true in general that transfusion is the safest and best way to administer iron parenterally.

THE BLOOD OF GORILLAS

To the Editor:—In a recent fiction magazine there was an article which stated that gorilla blood has the same types as human blood. How closely does gorilla blood resemble that of man?

M.D., Pennsylvania.

ANSWER.—There has been only one complete study of the blood group factors in gorillas (Wiener, A. S.; Candela, P. B., and Goss, L. J.: Blood Group Factors in the Blood, Organs and ctions of Primates, *J. Immunol.* **45:**229 [Nov.] 1942), and this showed that the blood of gorillas differs in many respects from human blood. This study was limited to two live gorillas and one dead gorilla; saliva was obtained from all three, blood only from the dead gorilla—for obvious reasons. There are species specific differences between gorilla blood and human blood, so that human serum may contain natural heteroagglutinins capable of clumping gorilla blood, and vice versa. With regard to the blood groups, the red cells of the gorilla tested failed to clump in either anti-A or anti-B serum, but the gorilla serum contained only anti-A and not anti-B agglutinins. The reason for this apparent paradox was revealed by tests on the saliva, which showed the presence of B-like antigens. Apparently, the gorillas tested all belonged to group B, but the B factor was present in appreciable amounts only in the organs and secretions and not in the red cells. In subsequent tests on urine from fifteen gorillas (Candela, P. B., cited by Wiener, A. S.: Blood Groups and Transfusion, ed. 3, Springfield, Ill., Charles C Thomas, 1943, p. 334) it was found that thirteen lowland gorillas all belonged to group B, while two mountain gorillas both belonged to group A.

TOXICITY OF DDT

To the Editor:—Have any symptoms been reported in workers engaged in the manufacture and/or use of DDT? What precautions, if any, should be taken when DDT is used about the home? What is the treatment, if any, for DDT intoxication?

A. Harry Roller, M.D., Bristol, Vt.

ANSWER.—A case of DDT poisoning in a laboratory worker was described recently by V. B. Wigglesworth. The symptoms of DDT poisoning are (1) an acute neurologic syndrome characterized by hyperexcitability, generalized tremors and convulsions and (2) chronic injury to the liver. These have been described in experimental animals. DDT is absorbed by all routes of administration, including cutaneous absorption if applied in lipoid solvents. Analysis of the urine for organic chlorine as described by Smith or by the colorimetric method of Schechter and Haller in suspected cases of poisoning is of diagnostic value. Gastric lavage, saline cathartics to hasten elimination, and urethane, diphenylhydantoin sodium or phenobarbital to control the neurologic symptoms in acute poisoning are indicated. References:

Wigglesworth, V. B.: A Case of DDT Poisoning in Man, *Brit. M. J.* **1:** 517 (April 14) 1945.

Smith, M. I., and Stohlman, E. F.: The Pharmacologic Action of 2,2 bis (p-Chlorophenyl) 1,1,1 Trichlorethane and Its Estimation in the Tissues and Body Fluids, *Pub. Health Rep.* **59:** 984 (July 28) 1944.

Lillie, R. D., and Smith, M. I.: Pathology of Experimental Poisoning in Cats, Rabbits and Rats, with 2,2 bis (p-Chlorophenyl) 1,1,1 Trichloroethane, *Pub. Health Rep.* **59:** 979 (July 28) 1944.

Smith, M. I., and Stohlman, E. F.: Further Studies on the Pharmacologic Action of 2,2 bis (p-Chlorophenyl) 1,1,1 Trichloroethane (DDT) *Pub. Health Rep.* **60:** 289 (March 16) 1945.

Cameron, G. R., and Burgess, F.: The Toxicity of 2,2 bis (p-Chlorophenyl) 1,1,1 Trichloroethane (DDT) *Brit. M. J.* **1:** 865 (June 23) 1945.

Woodard, G.; Nelson, A. A., and Calvery, H. O.: Acute and Subacute Toxicity of DDT (2,2 bis [p-Chlorophenyl] 1,1,1 Trichloroethane) to Laboratory Animals, *J. Pharmacol. & Exper. Therap.* **82:** 152 (Oct.) 1944.

Schechter, M. S., and Haller, H. L.: *Colorimetric Tests for DDT* and Related Compounds, *J. Am. Chem. Soc.* **66:** 2129 (Dec.) 1944.

CIRCUMCISION

To the Editor:—What advantages if any are there in circumcision of the newborn? It seems to me that many more circumcisions are being done than are necessary. I have noticed that if these so-called "tight foreskins" are left alone they seem to be all right when the babies are about 7 months old.

Guy C. Pesce, M.D., Watertown, Mass.

ANSWER.—The advantage of circumcision in the newborn is that it prevents the occurrence of many penile disturbances in later life, such as phimosis, paraphimosis and persistent balanoposthitis. In many hospitals circumcision is done almost as a routine procedure and it may be that many foreskins are needlessly sacrificed. It is a debatable question whether tight foreskins which are left alone do not cause any further disturbance.

EFFECT OF X-RAYS ON HYPERHIDROSIS

To the Editor:—In Queries and Minor Notes in The Journal, Nov. 10, 1945, page 776, an inquirer concerning the value of x-ray therapy in hyperhidrosis was told that "the amount of x-ray therapy needed to control hyperhidrosis of the palms and soles is relatively large. The skin is probably damaged by it. When successful, there is often abnormal drying and changes more or less characteristic of a radiodermatitis. The latter may not appear until years later. This should be enough to decide against x-ray therapy. Dr. Joseph J. Eller and I agreed that the answer is erroneous and should be rectified because it may without good reason deter physicians from the use of x-rays in that condition. We are just preparing a paper on x-ray therapy in hyperhidrosis based on over 500 cases treated in the last twenty years. Our results indicate that, if properly given, x-ray therapy assures a beneficial effect on hyperhidrosis without causing any appreciable damage to the skin.

Jonas Borak, M.D., New York.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 130, No. 5 — Chicago, Illinois — February 2, 1946

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OVERTREATMENT DERMATITIS OF THE FEET

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EILEEN COLLINS and MABLE MOSBY
Evansville, Ind.

The human foot has become the target of unbelievable chemical abuse. Feet are seen daily, painted all the colors of the rainbow or daubed so thick with salves that removal with a tongue blade is necessary to view the underlying dermatitis. The shoes smell of solution of formaldehyde and are caked on the inside with fungicidal powders. The patients, when questioned about the number of remedies used, shrug their shoulders and exclaim "I couldn't begin to recall. I've used everything. You are the sixth or seventh doctor I have seen. I've had this stuff between my toes for years. Just when I think it is well, it's back again. Each time it comes back I try something else. I've spent a small fortune for remedies, and look at my poor feet." These patients are sure of the cause of their dermatitis. It is the "athlete's foot" or the "fungus." Lay periodicals teach self diagnosis and treatment.

Every channel of advertising implores the sufferers, directly or by more discreet ways, to apply this remedy or try this when others fail: to put your fungus to sleep; to stop fierce, torturing, maddening itch; to relieve and quiet the burning; to sooth stinging; to heal ugly cracks and to allay suffering and pain. A few of the admonitions to daub dermatitis pedis are displayed in figure 1. When the lay diagnosis has been made, the person can choose for treatment in this locality any of the remedies shown in figure 2. Depending on the one chosen, the advent of overtreatment will be short or delayed.

THE PAST TREATMENT PATCH TEST

To date over 400 dermatologic patients have been patch tested with the remedies applied before the initial visit. These included the assortments of tinctures, lotions, salves and powders. The average number of preparations used in each case was four, but if the dermatitis was recurrent or of long duration the number would exceed ten, even twenty or more. About half of all the remedies tested were prescriptions of proprietaries. In this series 40 per cent of the patients (160) showed positive reactions to one or more of the remedies used. In 35 per cent (56 cases) the remedies had been used in the therapy of dermatitis pedis. As the number of remedies applied increased, so did the incidence of positive reactions. Any patient who shopped long enough would sooner or later apply a salve, tincture, lotion or powder that would contain an irritant or sensitizer.

DERMATITIS CONTACT FROM THERAPEUTIC CHEMICALS

The offender in 35 per cent of the patients (56) was one of the organic mercurials. The contact in 39 was the feet and in 17 other cutaneous locations. Merthiolate was responsible for 90 per cent of the reactions. Phenol was the cause in 14 per cent (22 cases). The feet were the contact in 10 cases and other cutaneous areas in the remaining 12. Ethyl aminobenzoate (benzocaine) caused reactions in 8 per cent (12 cases). In 6 of these the contact was the feet and in the remaining 6 cases other areas of the body. In the remaining 43 per cent (69 cases) the tars and derivatives were the offenders.

The organic mercurials, phenol and ethyl aminobenzoate caused 2 to 4 plus reactions. The latter was characteristic of the mercurials. The sulfonamides were frequently suspected, but positive reactions were not obtained. The tars and derivatives are now being studied. The reactions obtained were usually 1 plus, and about one third of these showed a fine vesiculation. This type of reaction was found in those patients who had used therapeutic tars for a long time or had had contact with industrial tars, oils and distillates. Sunlight can activate a patch test site weeks later into a pruritic, vesicular dermatitis, which involutes slowly. It seems that the therapeutic tars are going to behave on the skin as their close chemical relatives have behaved in industry: a cause of acute and chronic dermatitis. Sollmann[1] dismisses the tars as irritants. From present indications the word "sensitizer" might also be added. Perhaps the quip that skin patients are never ill and never get well may have in the latter an unrecognized truth—therapeutic chemicals inducing recurrences and chronicity in dermatoses. Lane[2] found tar, mercury, iodine, salicylic acid and cresol compounds as frequent causes of therapeutic dermatitis. In a series of 50 cases he found that 70 per cent were due to sulfonamides, 10 per cent to mercury, 10 per cent to unknown agents and the remaining 10 per cent to other drugs. In another series of 125 cases he found that 35 per cent were caused by sulfonamides and 45 per cent by unidentified therapeutic agents. It is believed that the high incidence of reactions to mercury in this locality is explainable on the basis of the extent of use. Merthiolate is applied to dermatologic lesions ranging from insect bites to neoplasms. Its use in the hospital, especially in surgery, amounts to almost bathing in it.

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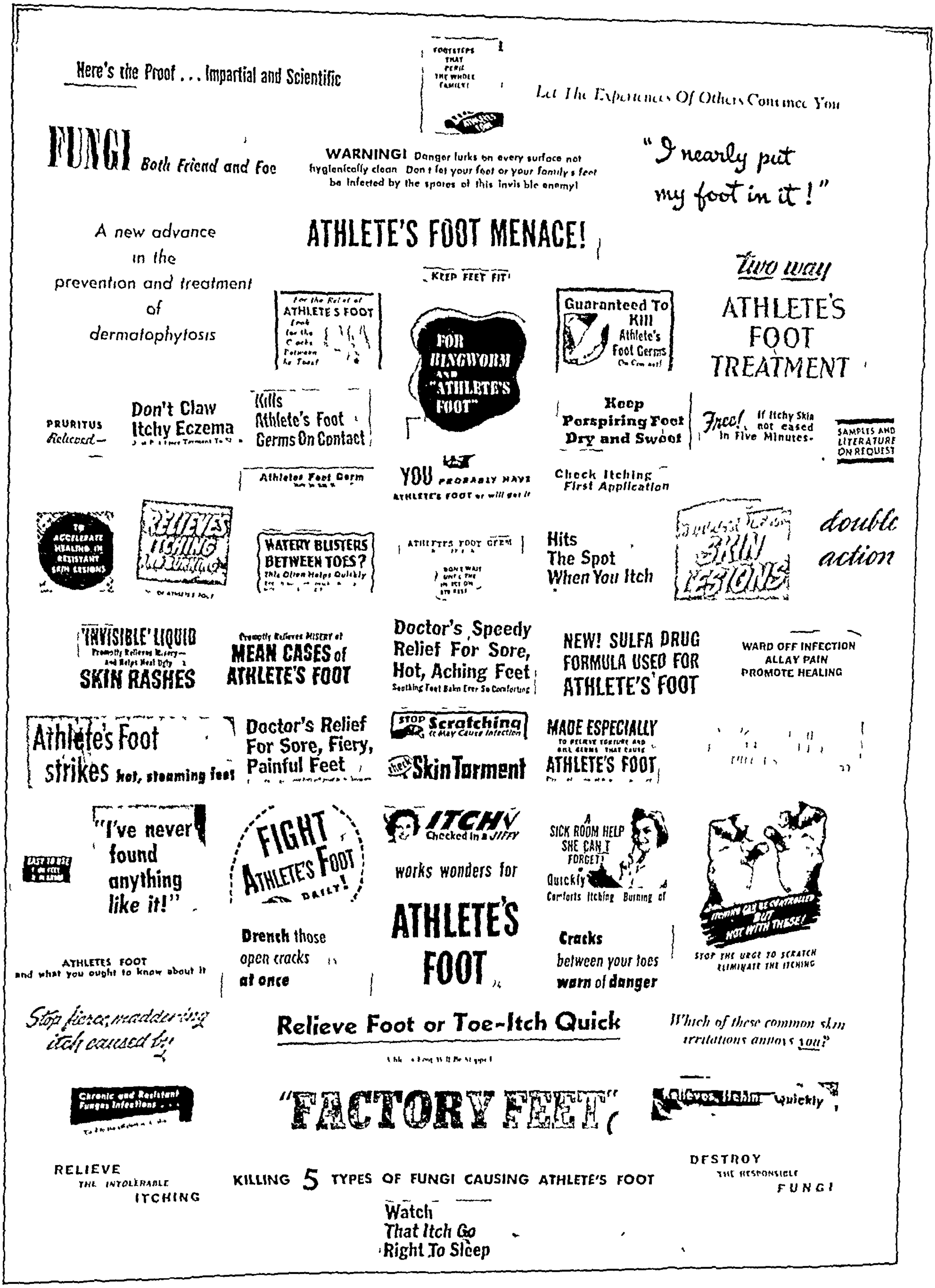
1. Sollmann, Torald: A Manual of Pharmacology, Philadelphia, W. B. Saunders Company, 1942, p. 651.
2. Lane, C. Guy: Cutaneous Disturbances Caused by Therapeutic Measures, J. Omaha Mid-West Clin. Soc. 6: 45-50 (April) 1945.



Here's the Proof . . . Impartial and Scientific

FOOTSTEPS THAT PERIL THE WHOLE FAMILY!

Let The Experiences Of Others Convince You

FUNGI Both Friend and Foe

WARNING! Danger lurks on every surface not hygienically clean Don t let your foot or your family s feet be infected by the spores of this invis ble enemy!

"I nearly put my foot in it!"

A new advance
in the
prevention and treatment
of
dermatophytosis

ATHLETE'S FOOT MENACE!

KEEP FEET FIT!

For the Relief of ATHLETE S FOOT

FOR RINGWORM AND "ATHLETE'S FOOT"

Guaranteed To Kill Athlete's Foot Germs

Two way ATHLETE'S FOOT TREATMENT

PRURITUS Relieved—

Don't Claw Itchy Eczema

Kills Athlete's Foot Germs On Contact

Keep Perspiring Feet Dry and Sweet

Free! If Itchy Skin not eased in Five Minutes.

SAMPLES AND LITERATURE ON REQUEST

Athletes Feet Germ

YOU PROBABLY HAVE ATHLETE'S FOOT or will get it

Check Itching First Application

TO ACCELERATE HEALING IN RESISTANT SKIN LESIONS

RELIEVES ITCHING

WATERY BLISTERS BETWEEN TOES? This Often Helps Quickly

ATHLETES FOOT GERM

DON'T WAIT

Hits The Spot When You Itch

SKIN LESIONS

double action

'INVISIBLE' LIQUID Promptly Relieves Misery— and Helps Heal Ugly SKIN RASHES

Promptly Relieves MISERY of MEAN CASES of ATHLETE'S FOOT

Doctor's Speedy Relief For Sore, Hot, Aching Feet

NEW! SULFA DRUG FORMULA USED FOR ATHLETE'S FOOT

WARD OFF INFECTION ALLAY PAIN PROMOTE HEALING

Athlete's Foot strikes hot, steaming feet

Doctor's Relief For Sore, Fiery, Painful Feet

STOP Scratching It May Cause Infection

Check Skin Torment

MADE ESPECIALLY TO RELIEVE TORTURE AND KILL GERMS THAT CAUSE ATHLETE'S FOOT

EASY TO USE

"I've never found anything like it!"

FIGHT ATHLETE'S FOOT DAILY!

ITCHY Checked in a JIFFY

works wonders for ATHLETE'S FOOT

A SICK ROOM HELP SHE CAN'T FORGET! Quickly Comforts Itching Burning of

STOP THE URGE TO SCRATCH ELIMINATE THE ITCHING

ATHLETES FOOT and what you ought to know about it

Drench those open cracks at once

Cracks between your toes warn of danger

Stop fierce, maddening itch caused by

Relieve Foot or Toe-Itch Quick

Which of these common skin irritations annoys you?

Chronic and Resistant Fungus Infections . . .

"FACTORY FEET"

Relieves Itchin' Quickly

RELIEVE THE INTOLERABLE ITCHING

KILLING 5 TYPES OF FUNGI CAUSING ATHLETE'S FOOT

DESTROY THE RESPONSIBLE FUNGI

Watch That Itch Go Right To Sleep

Fig 1—A few of the admonitions to daub dermatitis pedis

DERMATITIS CONTACT, MERCURY SENSITIZATION

During the first week of this study [3] a patch test with a burn ointment produced a bullous lesion at the testing site and a palm sized flare of patchy erythema around the patch testing adhesive. The follicular involvement was well defined, and similar lesions appeared simultaneously on the other arm and also over the anterior part of the thorax. On repatch testing with each chemical in the remedy, the sample containing the organic mercurial reproduced the aforementioned observations. The mercurials have been the only therapeutic chemicals encountered so far that can produce reactions of this type. They are thus considered "sensitizers" of high index because bullous reactions were obtained in dilutions of 1:1,000,000 with either organic or inorganic mercurials. The determining factor in these cases for positive reactions to the various mercurials and their respective dilutions has been the degree of sensitization. A highly sensitized person will react to organic and inorganic compounds, a low sensitized person will react say to aqueous merthiolate 1:5,000 but not to the tincture, mercuric chloride, metaphen, mercurochrome or ammoniated mercury.

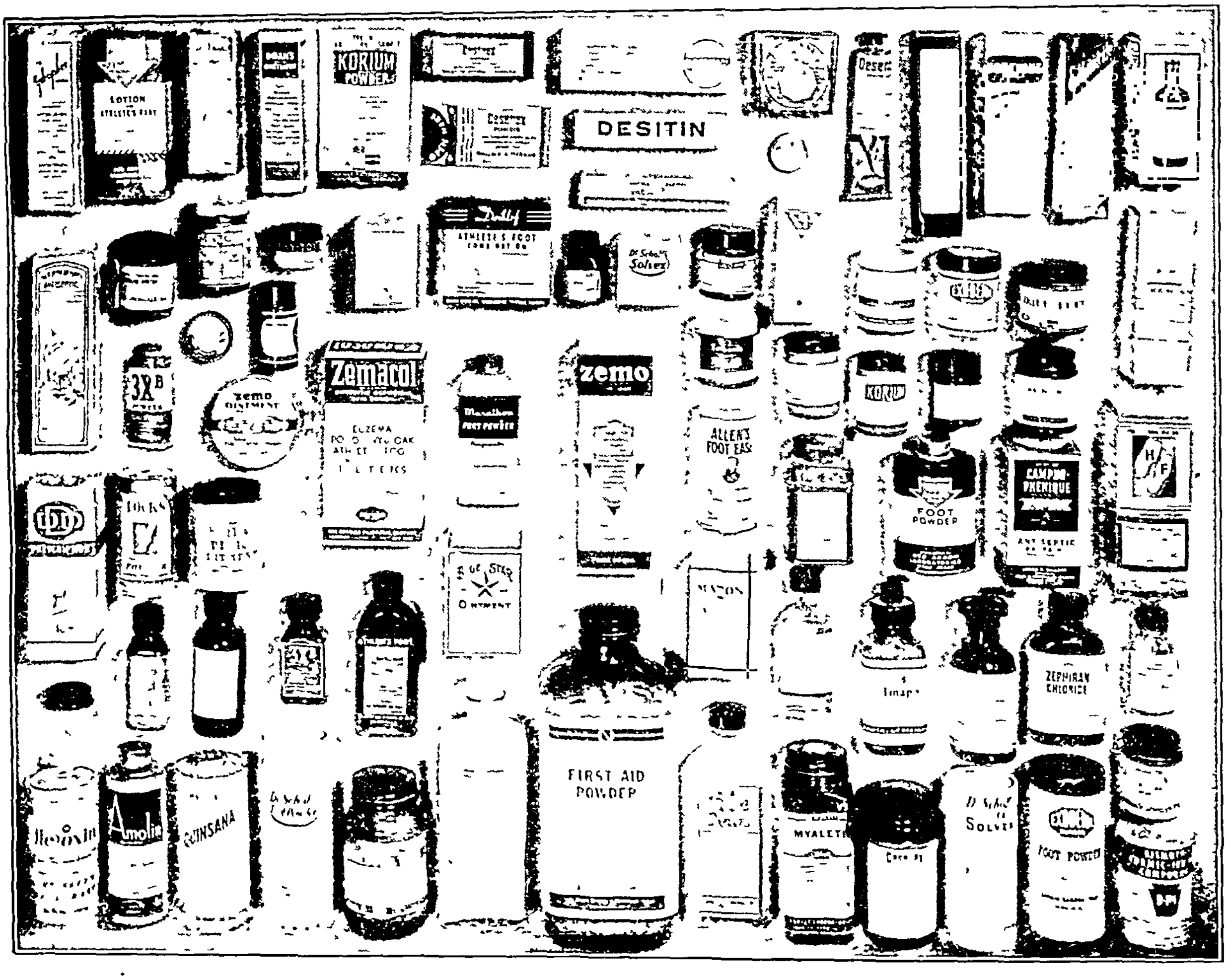


Fig. 2.—Remedies available in this locality for self treatment of dermatitis pedis

The history in every case of a positive patch test to a mercurial in a remedy revealed a previous exposure: mercurial therapy of skin diseases, mercury antiseptics during surgery or delivery at the hospital, the painting of cuts, scratches and minor burns with mercury antiseptics.

The tissue reactions of sensitization are observed most commonly on the hand, forearm, feet and legs. An area of dermatitis or injury is treated with a mercurial. During the next three to five days, healing or involution *seems to be progressing.* Suddenly a ring of erythema appears, followed by edema and soon the wound gapes, the base is pushed to the surface, a creamy pus exudes or the area of dermatitis shows an exacerbation with weeping and spreading. Usually these reactions are looked on as "infection" and more of the mercurial is applied, or something else is tried which may also contain mercury. If another mercurial is applied, in a few days there *is apt to be noted a fine, vesicular,* faintly erythematous dermatitis spreading peripherally from the site of injury or dermatitis. The vesicles may become bullae and the surrounding dermatitis hemorrhagic.

This type of dermatitis involutes slowly, and the initial lesion takes weeks to heal. The extent of the skin sensitization and the severity are determined by future mercury contacts. The sensitization seems to affect primarily the hair follicles and the sweat glands. Dermatitis contact from mercurials has been observed from potassium mercuric iodide,[4] mercurochrome,[5] mercurophen,[6] amalgam filling,[7] cinnabar,[8] ammoniated mercury,[9] merthiolate,[10] phenylmercuric nitrate,[11] yellow mercuric oxide,[12] metaphen [13] and mercury bichloride. The different mercurials inducing dermatitis would seem to indicate that in the mercury ion resides the sensitization properties. The mercury ion plus the tissue reaction—erythema, edema, vesiculation and especially exudation—seem to be a requisite for sensitization. The intensity of the tissue sensitization reaction seems to parallel the index of sensitization. Those patients showing an intense local reaction—appreciable edema, bullae, pustules and hemorrhage—usually reacted to high dilutions of organic and inorganic mercurials. A mercurial patch test (forty-eight hours) can become suddenly positive after as long as a month.

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[3] Gaul, L. E.: Overtreatment Dermatitis, J. A. M. A. **127**:439 (Feb. 24) 1945; The Danger of Home Remedies to the Skin, Hygeia **33**:280 (April) 1945.

TABLE 1.—*Chemicals in Dermatologic Textbooks and Literature*

Tars and Derivatives	Metallic Compounds	*Plant Products*	*Alcohols*	Animal Products
Acriflavine	Aluminum sulfate	Anthralin (synthetic)	Ethyl	*Lanolin*
Benzoic acid	Aluminum acetate	Acetic acid	Propyl	*Lard*
Benzene	Aluminum subacetate	Chrysarobin	Cetyl	Soap
Betanaphthol	Alum exsiccatum	Camphor	Acetone	Sodium propionate
Brilliant green	*Ammoniated mercury*	Birch tar	*Glycerin*	Undecylenic acid
Cresol	Boric acid	Oil cinnamon	Ethyl chloride	
Chlorthymol	*Borax*	*Oil clove*	Chloral hydrate	
Cetyl tar distillate	*Bentonite*	*Oil olive*	*Formaldehyde*	
Fuchsin	Bismuth subnitrate	Oil of cade	Chloroform	*Potassium palmitate*
Gentian violet	Zinc oxide	Menthol		Stearic acid
Ethylparaoxybenzoate	*Zinc superoxide*	Eucalyptol		Cod liver oil
Phenyl acrylic acid	*Zinc sulfate*	Tincture myrrh		*Calcium propionate*
Tetrachlorophenol	Zinc chloride	*Tincture benzoin*		
Phenol	*Zinc peroxide*	Tannic acid		
Salicylic acid	Zinc nitrate	*Starch*		
Ichthammol	*Tincture iodine*	*Cottonseed oil*		
Resorcinol	Silver nitrate	*Opium*		
Liquor carbonis detergens	*Sodium borate*	Lemon juice		
Thymol	Sulfur	*Balsam of Peru*		
Paraffin	Talc	Wax		
Petrolatum	Potassium carbonate	Penicillin		
Sodium benzoate	Phenyl mercuric nitrate	*Oil of rose*		
Sulfadiazine	Merthiolate			
Sulfathiazole	*Metaphen*			
Metacresyl acetate	Mercuric iodide			
Naftalan	Mercuric chloride			
Pyrogallol	Cadmium *chloride*			
Tar	*Copper sulfate*			
Methylene blue	Copper acetate			
Picric acid	Mercurochrome			
Zephiran	Sodium thiosulfate			
	Sodium hypochlorite			
	Lead acetate			
	Sulfuric acid			
	Hydrochloric acid			
	Chlorazene			
	Chlorine water			
	Antimony and potassium tartrate			
	Sodium perborate			
	Sodium chloride			

A "WARNING" ON TOPICAL MERCURIALS

In an earlier report [3] it was suggested that all preparations containing mercury designed for cutaneous application carry a "warning" on the label of the presence of a sensitizing chemical. The observations over the past year further confirm the importance of such a warning. The normal skin is apparently well equipped to withstand mercury contacts. An injured skin or skin shorn of its protective layers, particularly a skin already inflamed by contactants, is favorable soil for mercury to induce sensitization. Many of the patients in this series had used a mercurial on an existing contact dermatitis. Vehicles that alter the normal p_H of the skin or affect the lipoid coating or damage the horny layer or chemicals carried by the vehicles that effect similar changes or react with mercury may enhance the sensitization reaction. When Sulzberger [14] added salicylic acid 5 per cent to ammoniated mercury 5 per cent, 50 per cent of the patients tested showed positive reactions, whereas salicylic acid 10 per cent in petrolatum and ammoniated mercury 10 per cent in petrolatum rarely produced reactions. Dermatitis from mercury can be a disabling skin disease, the chronicity may be great and the hazard seems constantly present that renewed contacts will produce increasingly severe recurrences. Physicians, hospitals, clinics and first aid stations who use mercurial antiseptics risk inducing such sensitization. *It is significant* that the War Department Technical Bulletin of Medicine (TB MED 147), March 1945, announced the abandonment of local use of any chemical agent in a wound for its supposed antiseptic effect in the prevention or treatment of *infection*.[15]

THE CHEMICAL ASSAULT AGAINST DERMATITIS PEDIS

Since 1916, over a quarter of a century, dermatitis pedis has been subject to topical chemical therapy. It is still being approached from this angle, new "treatment ideas" blossoming out each month. Table 1 contains

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4. Kesten, Beatrice, and Laszlo, Elizabeth: Dermatitis Due to Sensitization to Contact Substances, Arch Dermat & Syph **23:** 221 (Feb) 1931. Lawrence, John, and Strauss, M J.: Dermatitis Due to Potassium Mercuric Iodide, ibid **30:** 76 (July) 1934.

5. Pascher, Frances, and Silverberg, Mabel G: Hypersensitivity to Mercurochrome Shown by Patch Test, Arch Dermat. & Syph **27:** 408 (March) 1933.

6 Gross, E R: Dermatitis Venenata, Arch Dermat & Syph **37:** 689 (April) 1938.

7. Traub, E F., and Holmes, R. H: Dermatitis and Stomatitis from Mercury Amalgam Fillings, Arch Dermat & Syph **38:** 349 (Sept) 1938.

8 Novy, F. G: A Generalized Mercurial (Cinnabar) Reaction Following Tattooing, Arch Dermat & Syph. **49:** 172 (March) 1944.

9 Sanitz, M H: Eczematous Contact Dermatitis Due to Mercurials, Arch Dermat & Syph **50:** 10 (July) 1944. Gibel, Harry, and Kramer, Benjamin: Idiosyncrasy to Mercury Preparations in Childhood, Am J Dis Child **66:** 155 (Aug) 1943.

10 Ellis, F. A., and Robinson, H M.: Cutaneous Sensitivity to Merthiolate and Other Mercurial Compounds, Arch Dermat & Syph **46:** 425 (Sept) 1942. Hollander, Lester: Contact Dermatitis Produced by Tincture of Merthiolate, ibid **50:** 123 (Aug) 1944.

11. Wilson, D J: Eruption Due to Hydrophen Ointment, Nebraska M. J. **24:** 70 (Feb) 1939.

12 Desten, B M: Conjunctivitis and Blepharitis Due to Yellow Oxide of Mercury, Arch Ophth **6:** 582 (Oct) 1931.

13 Belote, G H, and Marshall, D: Metaphen Dermatitis, J. Michigan M Soc **34:** 172 (March) 1935.

14 Sulzberger, M B: Dermatologic Allergy, Springfield, Illinois, and Baltimore, Charles C Thomas, Publisher, 1940, p 425.

15. Local Application of Crystalline Sulfonamides Discontinued, Medicine and the War, J A M A. **128:** 597 (June 23) 1945.

Table 2—*Chemicals in Proprietaries**

No	Name	Tars and Derivatives	Metallic Compounds	Plant Products	Alcohols	Animal Products
1	Absorbine Jr	Thymol (vehicle ?)	Iodine	Absinthin, menthol, echinacea, calendula		
2	Amoline powder	Methyl parahydroxybenzoate, thymol	Boric acid	Menthol, eucalyptol		
3	Athlecaine	Thymol, ethyl aminobenzoate, salicylic acid		Sandarac	Ethyl, isopropyl	
4	Alazone	Resorcinol (base)	Calamine			
5	Athlete's foot lotion	Salicylic acid, benzoic acid (vehicle ?)			Glycerin	
6	Allen's foot ease	Methyl parahydroxybenzoate, benzoic acid, thymol	Boric acid, bentonite, alum, talc			
7	Booth's balm	Thymol, creosote, litholein, petrolatum		Guaiacol, sanitas, eucalyptol, cocoa butter		
8	B F I powder	Zinc phenolsulfonate, mono n amylhydroquinone ether, thymol	Bismuth formic iodide, potassium alum, boric acid, magnesium carbonate, talc, zinc oxide	menthol, eucalyptol, lactose		
9	Benoxal	Benzoic acid, salicylic acid	Zinc oxide			
10	Blue Star ointment	Benzoic acid, salicylic acid, petrolatum		Methylsalicylate		Lanolin
11	Benzox	Hydroxyquinoline benzoate, benzocaine, beta naphthol benzoate, salicylic acid (base ?)	Titanium dioxide, sulfur	Camphor, menthol		
12	Campho phenique	Phenol, mineral oil		Camphor		
13	Campho phenique powder	Phenol	Boric acid, talc	Camphor		
14	Carbo fung	Phenol, fuchsin, resorcin				
15	Dorklof athlete's foot combination	Resorcinol, phenol, fuchsin, (base ?)	Boric acid, ammoniated mercury, sodium thiosulfate		Alcohol	
16	Daxalan	Crude coal tar (emollient ?)	Zinc oxide	Starch		
17	Domeboro ointment	Duponol (base ?)	Aluminum acetate, boric acid		Cetyl alcohol	
18	Domeboro tabs		Aluminum sulfate, calcium acetate			
19	Dr Sholl's solvex	Benzoic acid, salicylic acid, thymol (base ?)				
20	Dr Sholl's sulfa solvex	Sulfathiazole, salicylic (base ?)	Talc	Methyl salicylate		
21	Dr G H Tichenor's Antiseptic	(Menstruum ?)		Methyl salicylate, arnica		
22	Desenex ointment	(Base ?)				Zinc undecylenate, undecylenic acid
23	Desenex powder		(Base ?)			Zinc undecylenate, undecylenic acid
24	D D D	Thymol, phenol, salicylic acid		Methyl salicylate	Alcohol, glycerin, chloral hydrate	
25	Desitin ointment	Petrolatum	Zinc oxide, talc			Lanolin, cod liver oil
26	*Derma Medicone*	Benzocaine, oxyquinoline sulfate, ichthammol (base ?)		Ephedrine sulfate		
27	Doan's ointment	Benzocaine, oxyquinolin benzoate, chlorothymol, phenol, petrolatum	Zinc oxide	Tannic acid, vegetable oil	Chlorobutanol	Lanolin
28	Dr Sholl's	Salicylic acid	Talc, boric acid	Methyl salicylate		
29	Exoderm ointment	Salicylic, benzoic acid (base ?)	Boric acid			
30	Exoderm	Salicylic acid, benzoic acid	Boric acid, aluminum silicate, talc			
31	Epidermicide	Salicylic acid, thymol, benzoic acid			Solution of formaldehyde	
32	Epidermis fitosis	Salicylic acid, benzoic acid, thymol, gentian violet			Chlorobutanol, alcohol	
33	Epitosis ointment	Salicylic acid, benzoic acid, thymol, petrolatum	Phenylmercuric nitrate			
34	First Aid powder	Phenol, thymol, zinc phenol sulfonate	Bismuth oxyiodide, bismuth subgallate, bismuth subcarbonate, boric acid, zinc oxide, magnesium carbonate, alum	Menthol, eucalyptol		Allantoin
35	Foot balm	Benzoic acid, salicylic acid, chlorothymol (base ?)	Boric acid		Isopropyl	
36	Gebauer's		Phenyl mercuric chloride		Ethyl chloride	Lanolin
37	Hetoxin powder	Hydroxyquinoline benzoate, benzoic acid	Boric acid, talc			
38	H F	Benzoic acid, salicylic acid		Pine oil	Acetone	
39	Hydrophen	Ortho phenyl phenol (base ?)	Phenyl mercuric nitrate			
40	Korium powder	Salicylic acid, methyl parahydroxybenzoate, oxyquinoline sulfate, chlorothymol	Boric acid, zinc oxide	Thyme oil		
41	Korium ointment	Salicylic acid, benzoic acid, benzocaine, methyl parahydroxybenzoate (base ?)		Menthol		
42	Kerolysin	Benzoic acid, salicylic acid, chlorothymol (base ?)				

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* Douglas E Salisbury, Phar D, Walgreen Company, checked each product for purchasability by any person in this locality

TABLE 2.—*Chemicals in Proprietaries—Continued*

No.	Name	Tars and Derivatives	Metallic Compounds	Plant Products	Alcohols	Animal Products
43.	Kopertox	Petrolatum hydrocarbons	Copper naphthenate			
44.	Lan-O-Derm	*Salicylic acid, crude coal tar*	Yellow mercuric oxide, zinc oxide	....	....	Lanolin
45.	Lysol	Cresylic acid, aryl phenols	....	....	Glycerin	Soaps
46.	Lock's	Hydroxyquinoline sulfate, salicylic acid	Aluminum silicate, magnesium silicate, boric acid			
47.	Marathon powder	Salicylic acid, oxyquinoline benzoate	Boric acid, sodium perborate, bentonite, talc	....	....	Zinc stearate
48.	Mazon	Benzoic acid, salicylic acid (base ?)	Mercury salicylate	....	....	Sodium stearate
49.	Myalete	Thymol	Boric acid, metaphen, kaolin	Cinnamic aldehyde		
50.	Many Purpose Cream	(Formula not declared)				
51.	Merseptal Tincture	(Vehicle ?)	Phenylmercuric borate			
52.	Merseptal solution	(Vehicle ?)	Phenylmercuric borate			
53.	Merseptal cream	(Vehicle ?)	Phenylmercuric borate			
54.	Oilzo	(Vehicle ?)	....	....	....	Triolein ozonide
55.	Phe-ni-mer	(Base ?)	Phenylmercuric nitrate			
56.	Phy-tox	Salicylic acid, benzoic acid (base ?)	Arsenic trioxide, mercury salicylate			
57.	Penathol	Salicylic acid, benzoic acid, thymol, tricresol	....	....	Acetone, alcohol	
58.	Pragmatar	Cetyl tar distillate, salicylic acid (base ?)	Sulfur			
59.	Phenitol	(Base ?)	Phenylmercuric nitrate			
60.	Poslam	Phenol, salicylic acid (base ?)	Sulfur, zinc oxide	Oil of cade, menthol		
61.	Quinsana	Hydroxyquinoline	Sodium perborate, sodium borate, boric acid, kaolin, talc, sodium bicarbonate			
62.	Remedoil	(Formula not stated)				
63.	Red Arrow lotion	Salicylic acid, benzoic acid, coal tar	....	....	Alcohol	
64.	Red Arrow	Chlorthymol	Boric acid, kaolin,	Menthol	Paraformaldehyde	
65.	Salicresin Fluid	Salicylic acid, benzoic acid, secondary amytricresols (base ?)	Orthohydroxyphenylmercuric chloride		Isopropyl	
66.	Salicresin cream	Salicylic acid, benzoic acid, secondary amytricresols (base ?)	Orthohydroxyphenylmercuric chloride		Isopropyl	
67.	Soretone	Salicylic acid, beta ethyl hexyl phenol	....	Methyl salicylate, absinth in tansy oil, menthol	Acetone	
68.	Sopronol solution	....	....	....	N-propyl alcohol	Sodium propionate, propionic acid
69.	Sopronol ointment	(Base ?)	....	....	N-propyl alcohol	Sodium propionate, propionic acid, zinc stearate
70.	Sopronol powder	....	Talc base	....	....	Calcium propionate
71.	Schlueter's pink ointment	Phenol, benzoic acid petrolatum	Zinc oxide, calamine	Camphor, sassafras, oil of cade	....	Lanolin
72.	Tarbonis	Liquor carbonis detergens (base ?)				
73.	Tetterine	(Formula not declared)				
74.	Tenapo	Oxyquinoline sulfate, benzoic acid, thymol	Sodium thiosulfate, boric acid			
75.	TenOSix	Resorcinol	....	Oils	Glycerin, isopropyl alcohol	
76.	Thalloine ointment	Coal tar distillate, petrolatum	Zinc oxide, phenylmercuric nitrate	....	....	Lanolin
77.	Zephiran	Benzyl trialkonium chloride				
78.	Zemo ointment	Iodobenzoic acid (base ?)	Bismuth subnitrate, zinc oxide, boric acid	Menthol, methyl salicylate		
79.	Zemo Fluid	Phenol, benzoic acid	Boric acid, potassium nitrate, borax	Methyl salicylate, menthol	Alcohol, glycerin	
80.	Zemacol	Salicylic acid, phenol	Orthochlormercuriphenol, zinc acetate			
81.	3XB liquid	Salicylic acid, benzoic acid	....	....	Alcohol	
82.	3XB	Thymol iodide	Bismuth subnitrate, boric acid			
			SUPPLEMENT			
83.	B. G. O. ointment	Phenol, salicylic acid, petrolatum	Zinc oxide, iodoform, calamine, sulfur	Menthol	....	Lanolin
84.	Blis.To.Sol	Eosin, thymol, salicylic acid	Mercury perchloride	....	*Alcohol, acetone,* glycerin	
85.	Caloten	Phenol (base ?)	Calamine, zinc oxide			
86.	Calmitol	(Base ?)	....	Camphorated chloral, menthol, hyoscyamine oleate	Alcohol, ether, chloroform	
87.	Enzo-cal	Benzocaine (base ?)	Calamine, zinc oxide			
88.	Fungi-Rex	Benzoic acid, *salicylic acid,* phenol, thymol, petrolatum				
89.	Guadine	....	Iodine, potassium iodide	Guaiacol	Glycerin	
90.	H. V. 222	Phenol, thymol, salicylic acid, benzoic acid	Boric acid	Menthol	Ethyl, isopropyl	

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* Douglas F. Salisbury, Phar.D., Walgreen Company, checked each product for purchasability by any person in this locality.

Table 2.—*Chemicals in Proprietaries—Continued*

No. Name	Tars and Derivatives	Metallic Compounds	Plant Products	Alcohols	Animal Products
91. Iso-Par	Isoparaffinic acids, hydroxybenzyl dialiphatic amines, petrolatum	Titanium dioxide	....	Cetyl	Beeswax, lanolin
92. Liquid mycozal	Salicylic acid, benzoic acid, chlorobutanol, malachite green	....	....	Isopropyl	
93. Medicone foot cream	Thymol, salicylic acid, tar distillate (base ?)	Sulfur	Menthol, camphor		
94. Nixoderm	(Formula not stated)				
95. Obtundia powder	Metacresol, benzoic acid, salicylic acid, methyl ester parahydroxybenzoate	Boric acid, titanium dioxide, talc	Camphor		
96. Presto	Salicylic acid, benzoic acid, thymol	....	....	Alcohol	
97. Peterson's	Phenol (base ?)	Zinc oxide	Camphor, tannic acid, balsam fir		
98. Ped	Benzoic acid, salicylic acid, chlorthymol (vehicle ?)				
99. Te-ol	Benzoic acid, salicylic acid	....	Camphor	Alcohol	
100. Thio-borate	....	Sodium thiosulfate, boric acid, zinc stearate	Oil lavender, oil eucalyptus		
101. Two-Way liquid	Salicylic acid, benzoic acid	Iodine	....	Acetone	
Two-Way powder	Salicylic acid	Boric acid, sodium thiosulfate			
102. Tenicide	Salicylic acid, phenol, thymol	Iodine, zinc sulfocarbonate	Camphor	Chloroform, formaldehyde, alcohol	
103. Silverroyl	Methyl salicylate	....	Oil origanum, oil turpentine, acetic acid	Acetone	Eggs
104. Sever's ointment	Benzoic acid, salicylic acid	Zinc oxide	....	....	Lard
105. Sporeen	Thymol, sodium 2-hydroxy di-phenyl (base ?)	....	Menthol	Glycerin	
106. Wiley's	Salicylic acid, betanaphthol, oxyquinoline sulfate	Sulfur	Oil ricini		

* Douglas F. Salisbury, Phar.D., Walgreen Company, checked each product for purchasability by any person in this locality.

a partial listing of the chemicals reported to be of value in dermatophytosis. It is not a chemical classification but more a means of segregation and presentation. An attempt was made to classify pharmacologically these chemicals, but the mass of conflicting data led to abandonment. If one year a certain chemical was found fungicidal and of therapeutic value, the following years it was shown to be worthless. Equally conflicting and depicting the "testimonial treatment idea" was the concentration or strength of topical chemicals. Phenol varied from 1 to 50 per cent, silver nitrate from 0.25 to 20 per cent, salicylic acid from 1 to 40 per cent, mercury bichloride from 1:2,000 to 1:10,000. The proper vehicle to use seemed a matter of yearly trends or whims as well as the chemicals to be incorporated. The tars were praised in some reports, the heavy metals and dyes in others, or the aluminum family and essential oils were superior and finally lemon juice worked wonders. The latest attractions are fatty acids.

Hopelessly mired was the subject of prevention and prophylaxis. Certain writers prescribed a routine as complicated as Hasselbalch's equation and urged Americans to enter the bathroom with a bottle of antiseptic in each hand, to fight contagious, infectious fungi. Other writers called all this useless nonsense and considered it potentially harmful. The fungicidal foot bath passed through its period as a means of prevention to a means of actually spreading infectious fungi. Really to stamp out the dermatophytes it has been proposed that shoes, slippers, stockings and the floors of shower baths and bathrooms be impregnated with fungicidal chemicals. In spite of all these chemical maneuvers the intertriginous dermatophytes failed to yield, so roentgen and radium rays, refrigerants and iontophoresis were brought to bear, aided and abetted by sandpaper, pumice stone and an assortment of knives, scrapers and motor driven burrs. The surgical removal of toe nails and sometimes finger nails has been practiced as necessary, but recently it was proposed that the toe nails—a cosmetic abomination anyway—be permanently eradicated. If the surgeons enter the fight against the dermatophytes, certainly the little toes, perhaps the others and even the foot may be removed: a type of dispatch bound to cure.

Unfortunately this prevention, prophylaxis and therapy frustration has not been kept in the confines of the research laboratory or the sphere of clinical investigation. It has spread into the practices of physicians [16] throughout the country. Certain medical periodicals arriving gratis each month will display eight to fifteen pages of topical preparations, all chemically different but each a specific for dermatophytosis. Pamphlets arrive also with quotations from eminent medical authorities who found this a specific or that a specific "to eliminate fungous infection ringworms without irritation." Furthermore, and herein lies the tragedy, it has spread into the American home. The daily, weekly and monthly periodicals display an urgent message how to diagnose, prevent and treat athlete's foot. The chemicals to choose from in this locality for self treatment are segregated in table 2. A review of the formulas is in reality a chronological treatment history of tinea pedis. Each remedy at one time had an authoritative medical reference. One report, pittanced or commandeered, is sufficient evidence to market and promote a remedy. If later reports fail to substantiate the first, these are ignored. The promotion is diligently fostered, resulting in outdated and discredited chemical hodgepodges, vying for sales appeal on the retail shelves. In a report [17] prepared for the Council on Pharmacy and Chemistry it was stated that only one substance, boric acid, was safe for public use. A canvass by Weidman of his local dermatologic society disclosed that Whitfield's ointment carried a large factor of danger. Twenty-nine of the remedies contained benzoic and salicylic acids. This report considered particularly dangerous preparations containing iodine, mercury, sulfur or sulfonamides. One remedy contained sulfathiazole, six contained sulfur, nineteen contained mercury, nine contained iodine or its compounds. Eighteen of the remedies contained phenol and five ethyl aminobenzoate. These also should be considered dangerous preparations.

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[16] We were interested in learning the number of dermatologic patients seen by physicians in this locality. A questionnaire was mailed. Over one hundred replies were received. The average was 8 per cent. The diseases of the skin that physicians are called on to care for stands out in sharp contrast to the training given in medical schools. The average from ten schools was 0.016 per cent of the medical curriculum. The comments written in long hand on the replies were critical of the training given and bemoaned its inadequacy.

[17] Weidman, F. D.; Emmons, C. W.; Hopkins, J. G., and Lewis, G. M.: War and Dermatophytosis, J. A. M. A. **128**:805 (July 14) 1945.

THE DIAGNOSIS OF DERMATITIS PEDIS

The symptoms itching, stinging, smarting and burning of the pedal skin indicate that the skin of the foot has become ill. The signs, color, erythema, vesiculation, pustulation, maceration, scaling, fissuring and so on help to indicate the kind and severity of the illness. These symptoms and signs require a diagnosis just as do symptoms and signs referable to the abdomen. The report by Montgomery and Casper [18] describes the signs and incidence of causative fungi in tinea pedis. J. H. Mitchell [19] deplores the tendency to treat all acrodermatitis as ringworm without establishing a diagnosis by microscopic examination. G. M. Lewis [19] adds emphasis to this and considers cultural studies mandatory. Ormsby and Montgomery [20] state that it is essential that the clinical diagnosis be confirmed by a microscopic examination in every case. Dermatitis pedis requires, in addition to the foregoing, a routine blood, urine and serologic examination. Until a diagnosis is made, nursing care of the pedal skin is all that is indicated, and contraindicated are the remedies in table 2. Directing attention to diagnosis and away from treatment will cause a decline in the incidence of overtreatment dermatitis.

COMMENT

Several decades ago the bowel was being symptomatically dosed. Each abdominal complaint had myriads of potions and concoctions all of which, if only given a trial, would effect curative miracles. The bowel has had its therapeutic renaissance, but the skin, its symptoms and even its signs of disease are being symptomatically daubed and painted. A chemical and pharmacologic exposure of the oral cure-alls caused their mysterious and divinatory healing powers to vanish. Many were worthless, others actually or potentially dangerous. When the cutaneous oils, creams, salves, lotions, tinctures and powders are chemically and pharmacologically exposed, many of them will prove worthless. Many are already actually and potentially dangerous. It took the tragedies from self medication to end oral dosing; tragedies from self treatment of skin diseases are mounting. Lane [21] states that improper therapy causes more visits to the dermatologist than any other skin disease, a sad commentary for an era of enlightened therapeutics.

It is urged that the Council "clean house" in the field of cutaneous drugs as it did with oral and parenteral drugs: tear apart the topical concoctions and define each cutaneous chemical in terms of dosage, indications and contraindications, declare each therapeutic agent according to its chemical and pharmacologic properties. If benzoic acid is a useful topical drug, define its dosage —per cent strength—indications and contraindications. If it has no specific uses, it should be discarded. When this is done for each chemical used on the skin, the long lists of prescriptions in textbooks for this or that dermatosis, the host of proprietaries, will be superfluous Physicians will know, depending on the symptoms and signs presented by the skin, the treatment indicated. The proper vehicles should also be defined and kept as simple as possible so that adverse reactions will be more easily apprehended.

Methods of testing cutaneous drugs need definition. Letters arrive weekly from manufacturers stating that their product was tested by an eminent authority and found safe. This is true for the normal skin, whose protective barriers (the p_H, the lipoid coating, the horny mantle) withstood the twenty or forty-eight hour contact; but what about a week or two week contact and, crucially important, the effects of the product on a skin shorn of its protective mantles or eczematized? The product in contact with living epidermal cells, nerve corpuscles and the cutis can be violently toxic, yet harmless when outside the cutaneous protective barriers. The history of this or that remedy helping for a few days, followed by a sudden flare-up, has been consistently noted. All during the course of this investigation it has been disconcerting to see the close similarity between cutaneous medicinals and the chemicals in industry proved to be a leading cause of dermatitis, such as tars, oils, greases, resins, solvents, soaps and alkali.

SUMMARY

The past-treatment patch test in over 400 dermatologic patients showed positive reactions in 40 per cent to one or more of the remedies used.

The chemicals in remedies the most frequent cause of dermatitis were mercury, phenol and ethyl aminobenzoate.

The investigations disclosed that all mercurials should carry a "warning" on the label of the presence of a sensitizer.

The cutaneous tissue reaction denoting sensitization or irritation from topical chemicals has been frequently overlooked and often wrongly considered infection.

Dermatitis pedis requires a differential diagnosis, and to apply or advocate a remedy on the assumption that fungi are the cause promotes and lends countenance to the abhorred practice of daubing.

Lest an episode like table 2 occur again, it is urged that dermatologists take steps to prevent the commercial commandeering of scientific reports and formulas and to set up within present organizations referees working with the Council to judge the maturity of new therapies and diagnostic procedures before they reach untrained hands and produce the treatment tragedies now so evident.

Excellent postgraduate training in the chemistry and pharmacology of topical chemicals awaits physicians who patch test the remedies used—observing the usual precautions—before prescribing further topical treatment.

A vigorous and intelligently conceived educational program setting forth the tenets of preventive and hygienic dermatology, upholding and fostering this program with both hands, not daubing with one, will do much to remove the curse of contactant and overtreatment dermatitis from the skin of Americans.

509 Hulman Building.

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STREPTOCOCCUS s. b. e. IN SUBACUTE BACTERIAL ENDOCARDITIS

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The subject of the present report is an investigation of organisms recovered from the blood of patients with subacute bacterial endocarditis which were obtained from various sources. The identities of the first 106 consecutive cultures submitted are presented in table 1.

Of interest in this study was the isolation of an apparently new variety of nonhemolytic streptococcus in 41 instances (39 per cent); this organism is now designated Streptococcus s. b. e. Apart from the fact that it had not been recovered or recognized previous to this study, its high incidence warranted intensive investigation. Its cultural properties, relationship to other streptococci and serologic classification were studied in detail.

The significant cultural characteristics of Streptococcus s. b. e. are briefly as follows:

1. Greening occurs on blood agar in twenty-four hours.
2. Hydrolyzes arginine in forty-eight hours.
3. Ferments inulin in one week.
4. Does not ferment raffinose.
5. Does not produce large mucoid colonies on sucrose agar.
6. About 90 per cent of the strains fall in one serologic type, as shown by the precipitin test with cell extracts made according to the Lancefield technic.[1]

Streptococcus s. b. e. is not a miscellaneous collection of "unclassifiables" but apparently a rather homogeneous unit having a unique combination of biologic characteristics as well as considerable immunologic homogeneity. Apart from the washings of an infected sinus, it has not been possible thus far to isolate a similar streptococcus from the human mouth and throat.

This variety of streptococcus not only has a rather characteristic and distinctive combination of physiologic properties but about 90 per cent of the strains which have been tested fall in one serologic type. The few strains thus far studied which do not belong to this serologic type fall in one additional type.

Included in the 41 cases of subacute bacterial endocarditis infected with the new type of streptococcus were a group of 19 patients recruited from a consecutive, unselected series of 102 cases treated with a combination of penicillin and heparin.[2] The refractory character of the organism under investigation is strikingly apparent from a comparative study of treatment statistics, recovery percentage, mortality rate and incidence of recurrence. A forthcoming report [3] deals with the clinical behavior and prognostic import of Streptococcus s. b. e., which was chiefly responsible for the treatment failures (table 2). It was found that intensive, massive penicillin treatment was mandatory in order to terminate the disease in subacute bacterial endocarditis patients infected with Streptococcus s. b. e. The optimum dosage plan for patients thus infected is an uninterrupted span of treatment for eight weeks with daily intravenous administration of at least two million Oxford units of penicillin, the heparin being incorporated in the usual manner. The prompt identification of Streptococcus s. b. e. as the causative agent in subacute bacterial endocarditis, facilitated by the use of the presently available diagnostic serum, has been a life-saving measure.

Table 1.—*Streptococci from Subacute Bacterial Endocarditis*

(106 Cultures from Various Sources)

Species or Variety	Number	Comment
Streptococcus s. b. e.	41	A hitherto undescribed variety of nonhemolytic streptococcus
Streptococcus mitis..........	39	The common throat viridans streptococcus
Streptococcus bovis.........	11	Similar to so-called "Bargen streptococcus"
Streptococcus fecalis........	5	Group D; nonhemolytic enterococci
Streptococcus mastitidis....	4	Group B; 3 hemolytic, 1 nonhemolytic
Group G streptococci........	1	"Nonminute" variety; hemolytic
Unclassified streptococci.....	5	Not identified with any known species

Table 2.—*Streptococcus s. b. e. as a Factor in Prognosis in a Series of 102 Treated Cases of Subacute Bacterial Endocarditis*

Causative Organism	Number of Cases	Treatment Successful		Recurrence	Fatal Outcome
		Number	Per Cent		
Streptococcus s. b. e.	19	8	42	5	7*
Streptococcus mitis..........	17	15	88	0	2
Streptococcus bovis.........	3	3	100	0	1†

Streptococcus s. b. e.: A hitherto undescribed variety of nonhemolytic streptococcus. Strains belonging to this type show distinct homogeneous cultural and immunologic reactions

Streptococcus mitis: The common throat viridans streptococcus

Streptococcus bovis: Similar to so-called "Bargen streptococcus"

* Includes 1 case of terminal Staphylococcus aureus infection following apparent recovery from Streptococcus s. b. e. endocarditis.

† This successfully treated patient subsequently died of congestive heart failure; at autopsy the mutilated valve cusps were completely fibrosed and free from bacteria.

CONCLUSION

A hitherto undescribed type of nonhemolytic streptococcus with distinctive biologic characteristics and considerable immunologic homogeneity has been identified as the causative agent in refractory cases of subacute bacterial endocarditis. The clinical significance of these bacteriologic findings will be the subject of a forthcoming report.

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The Level of Lactic Acid in the Brain.—The level of lactic acid in the brain (as found by analysis of tissue frozen in situ) does not passively follow the level in the blood but is regulated primarily by metabolic conditions within the tissue. In morphinized dogs the cerebral lactic acid is increased by hypoxia below a critical level of 11 to 13 per cent oxygen in the respired air. Phosphocreatine begins to decompose below a critical level of 7 per cent oxygen. The lactic acid and phosphocreatine levels also seem to be related to the functional activity of the neurons or the oxidative rate.—Stone, W. E.; Webster, J. E., and Gurdjian, E. S.: Chemical Changes in the Brain and Gasometric Studies of the Blood in Experimental Head Injury, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

NOCTURNAL GASTRIC SECRETION IN DUODENAL ULCER

Studies on Normal Subjects and Patients, with Their Bearing on Ulcer Management

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This report deals with 150 nocturnal gastric secretion studies performed on 38 normal persons (73 studies) and 29 patients with duodenal ulcer (77 studies), with particular attention being paid to "hypersecretion" and "hyperacidity" and their bearing on management of patients with duodenal ulcer.

It is generally believed that patients with duodenal ulcer have a more copious secretion of gastric juice (hypersecretion) of a higher hydrochloric acid concentration (hyperacidity) than normal persons of the same sex and age. Both clinicians and surgeons usually focus their attention on this hypersecretion-hyperacid factor in the management of patients with duodenal ulcer. Indeed, a number of gastroenterologists and gastric surgeons, believing that the hypersecretion-hyperacid factor is chiefly responsible for the pathogenesis of both the duodenal ulcer and the postoperative jejunal ulcer, have recommended new ways and means of combating or eliminating this factor. Palmer and Templeton [1] believe that the "excessive continued night secretion" plays an especially important role in the failure of ulcers to heal. They therefore employed radiation therapy over the upper two thirds of the stomach with the view of inactivating the hydrochloric acid producing cells. Connell [2] performed fundusectomy as a method of diminishing the acid secreting surface. Klein [3] and Winkelstein [4] suggested, and Berg [5] and Colp [6] subsequently performed subdiaphragmatic anterior vagotomy along with subtotal gastric resection to prevent the postoperative jejunal ulcers which are being reported in increasing numbers following subtotal gastric resection. They state that hypersecretion of the acid gastric juice is responsible for recurrences following this operation. Recently Dragstedt and his associates [7] performed supradiaphragmatic section of the vagus in an effort to reduce the hypersecretion-hyperacid factor in ulcer patients. Andrus [8] implanted a pedicle graft of jejunum in the wall of the stomach to exert a direct inhibiting effect on the acid secretory mechanism. Ivy [9] and his group are working with enterogastrone, and they [10] and Sandweiss and his associates [11] are experimenting with urogastrone with the hope of controlling the apparent hypersecretory state of ulcer patients.

Because "hypersecretion," "hyperacidity" and the acid gastric juice are generally considered as playing important roles in the pathogenesis of duodenal ulcer and in postoperative jejunal ulcer, we initiated this study to obtain comparative data on patients with duodenal ulcer and on normal subjects.

We conducted our gastric secretory studies during the night, not only because less contaminated gastric juice may thus be obtained for study, but chiefly because we were interested in the concentration and volume of gastric juice during that period of seven or eight hours of the night when normally the stomach is devoid of food and when gastric secretion is uncontrolled. We employed a fairly well balanced meal (which included meat and fish as a source of protein) and gave it at 6 p. m., since this meal given at this time, we believed, would most nearly represent a normal gastric stimulant, and the study would thus most closely represent the normal gastric secretory status during the night. To be more certain of the variations in hydrochloric acid concentration and of the variations in the volume of gastric juice, we obtained hourly samples of gastric juice (from 7 p. m. to 8 a. m.) for titration, complete aspirations of the stomach at the end of each hour from 12 midnight to 8 a. m. and (in other subjects) the total volume of gastric juice from 12 midnight to 7 a. m. by continuous gastric aspiration.

METHOD OF STUDY

Fifty-five night secretion studies were performed on 7 normal young men (19 studies), 8 normal young women (15 studies) and 7 young men with uncomplicated duodenal ulcer (21 studies). All ulcer patients had only mild ulcer distress and presented uncomplicated duodenal ulcers when the studies were conducted. All subjects were ambulatory. All were permitted to have their usual noon meal but not permitted to eat any food until 6 p. m., when their stomachs were completely emptied by aspiration. The volume of the gastric contents were measured and the juice was titrated with 0.01 normal sodium hydroxide for free and total hydrochloric acid, Topfer's reagent and phenolphthalein being used respectively as indicators. Immediately after aspiration the subjects were given an evening meal which was especially prepared. It consisted of foodstuffs which are fairly representative of the average American dietary but which contained a minimum of cellulose. This type of meal was designed to eliminate difficulties in aspiration through the duodenal tube. In addition, the consistency and physical state of the foods were kept constant. This is an important factor in the use of test meals, since Friedman and Pincus [20] have shown

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Paper published under the auspices of the Section on Gastro-Enterology and Proctology.

Mary M. Harrington, M.A., director of dietetics at Harper Hospital, and members of the department gave valuable assistance during the course of this study.

This article has been abbreviated for publication in THE JOURNAL with omission of most of the comment on the physiologic phase of night secretion, tables, charts, graphs and other sections, which will appear in the authors' reprints and also in an article in Gastroenterology now in press.

[1] Palmer, W. L., and Templeton, F.: The Effect of Radiation Therapy on Gastric Secretion, J. A. M. A. **112**: 1429 (April 15) 1939.

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that a difference of as much as 32 per cent exists in the gastric secretory response to a standard meat meal when the meat is ingested as ground beef or as small cubes.

Table 1 lists the various foods of the meal, giving the weight as well as the proportions of protein, fat, carbohydrate and the caloric values. Hourly samples of gastric contents obtained from 8 p. m. until 12 midnight were titrated for free and total hydrochloric acid. At 12 midnight and once hourly thereafter (at the end of each hour) until 8 o'clock the next morning the stomach was completely aspirated, note being made of the volume of juice obtained and the acid concentration of each specimen. The subjects remained in bed at Harper Hospital throughout the night and slept in the interim between aspirations.

TABLE 1.—*Meal With Beef Broth and Fish*

	Grams	*Protein*	*Fat*	Carbohydrate	Calories
Bouillon (beef broth)	100	1.0	...	...	4
Soda crackers	10	0.9	0.9	7.3	42
Broiled whitefish	120	27.5	7.8	...	180
Slice lemon	20	0.2	0.1	1.8	9
Mashed potatoes	100	2.0	0.1	19.0	85
Butter	10	0.1	8.5	...	77
Strained orange juice	200	1.2	...	26.2	110
Vanilla ice cream	50	1.3	3.4	5.6	58
White bread	40	3.6	0.8	20.8	104
Butter	10	0.1	8.5	...	77
20% cream and coffee	25	0.6	4.6	4.1	48
Sugar	15	...	...	15.0	60
Milk	200	6.6	8.0	10.0	138
Total		45.1	42.7	109.8	992

To determine what effects meat and fish proteins (when included in the noon meal instead of the evening meal) have on the nocturnal gastric secretions, we conducted 21 additional night secretion studies on the aforementioned 7 ulcer patients with only the following change from the foregoing routine: The meal referred to in table 1 was given at 12 noon instead of at 6 p. m. The 6 p. m. evening meal during these 21 additional studies differed from the other evening meal in that the subjects were allowed no meat extractives (beef broth) and fish, considered to be strong stimulants of gastric secretion. Table 2 lists the nature and amount of each food as well as the protein, fat, carbohydrate and caloric values. We sought to determine whether there would thus be a decrease in the nocturnal volume of gastric juice and a lowering in the acid concentration when the meat extractives and fish were included in the noon meal instead of in the evening meal. The total protein content, however, was practically the same for all of the meals.

In the foregoing 76 studies the gastric juice was aspirated only once hourly from 12 midnight until 8 a. m. We subsequently conducted 74 additional night secretion studies (on 23 normal males and 22 male patients with duodenal ulcer) using the meal listed in table 1 at 6 p. m. but employing continuous suction as the method of aspiration from 12 midnight to 7 a. m. after a preliminary complete emptying of the stomach at 12 midnight. These patients slept undisturbed throughout the night. The reasons for this study will be discussed later.

RESULTS

I. Concentration of Hydrochloric Acid

1. In all instances (chart 1) samples of the gastric contents taken after the evening meal showed a much lower titratable acidity than before the meal. This may be accounted for by both the diluting effect of the meal liquids and the well known neutralizing and acid adsorbing power of the meal solids. It is only after 9 p. m. that an elevation in the gastric acidity usually began to occur; presumably by this time much of the gastric contents have been evacuated. Actually, traces of food were frequently found present in the gastric samples until 11 or 12 p. m. and it is only after this period that the gastric contents can be considered to be least contaminated by food and more truly representative of gastric juice.

2. The curves showing average concentration of hydrochloric acid in both normal persons and ulcer patients show no pronounced variations from each other. After 1 a. m., however, there is a tendency for a higher acid concentration in the normal male group (chart 1).

3. Composite curves showing averages are misleading. A peak in the concentration of acid in one subject (or during one night study) may be leveled out by a low concentration in another subject (or in the same subject on another night), and so on. We therefore present several graphs which we found to represent certain patterns. These are shown in patterns 1, 2, 3 and 4 (charts 2, 3, 4 and 5).

4. As a rule in both normal persons and ulcer patients two and sometimes three peaks in concentration of free acid usually occur, one peak between 10 and 11 p. m., another but smaller peak between 1 and 2 a. m. and a third, still smaller, at approximately 5 a. m. After 5 in the morning the concentration of free acid is nearly always very low (pattern 3, chart 4).

5. At times both in normal persons and in ulcer patients a curve similar to that of pattern 4 is obtained, a rise in the concentration of acid at 9 p. m. reaching its peak at 10 or 11 and remaining approximately at that level until 4 or 5 in the morning.

6. The nocturnal curves of free hydrochloric acid concentration vary considerably. Not only is there variation from one normal person to another and from one ulcer patient to another, but also variations in the same person on different nights, even though the same meal is given at 6 p. m. and the studies are conducted under similar conditions (chart 6).

TABLE 2.—*Meal Without Beef Broth or Fish*

	Grams	*Protein*	*Fat*	Carbohydrate	Calories
Cream pea soup					
Flour	5	0.5	0.1	3.8	18
Purée fresh peas	50	3.4	0.2	0.9	51
Milk	100	3.3	4.0	5.0	69
[illegible]	10	0.9	0.9	7.3	42
[illegible]	120	23.0	1.0	4.8	120
[illegible]	100	2.0	0.1	19.0	85
[illegible]	10	0.1	8.5	...	77
[illegible]	50	1.3	3.4	5.6	58
[illegible]	40	3.6	0.8	20.8	104
[illegible]	10	0.1	8.5	...	77
20% cream and coffee	25	0.6	4.6	4.1	48
Sugar	20	...	...	20.0	80
Grapefruit juice	100	0.6	0.2	12.0	52
Total		39.4	32.3	103.3	881

7. We were able to obtain gastric juice after midnight in all of our 76 studies. In only 2 studies (1 a normal female and the other a male ulcer patient) did the gastric juice fail to show free hydrochloric acid after 12 midnight. In these 2 studies the samples between 8 p. m. and 12 midnight showed free hydrochloric acid.

8. Assuming, as other workers have, quite arbitrarily, that a concentration of over 70 clinical units is abnormal, it will be noted from table 3 that a peak of 70 clini-

cal units or over is found in 53 per cent of the night secretion studies in the normal males, compared with 40 per cent for the normal females, 24 per cent for the ulcer patients with the meat-fish protein diet at the evening meal and 33 per cent for the ulcer patients who had the meat-fish protein diet at the noon meal. If 80 clinical units or over is considered abnormal, then the percentages are 47, 20, 14 and 5 respectively.

On the basis of this small series of subjects and limited number of studies (76 studies) we cannot draw the general conclusion that ulcer patients as a rule have a higher concentration of acid during the night than normal persons.

II. *Volume of Gastric Juice*

(A) Complete Aspiration Once Hourly, On the Hour, from 12 Midnight To and Including 8 A. M. The following summary is presented following an analysis of chart 7 and tables 4 through 7:

1. On the average, a greater volume of gastric juice may be aspirated at the end of each hour from ulcer patients as compared with the average volume obtained from normal subjects (chart 7).

2. The average hourly volume of gastric juice decreases after 11 p. m. until it reaches its lowest level between 5 and 7 in the morning (chart 7).

3. On the average, higher volumes of gastric juice were obtained from ulcer patients as compared with those of normal subjects when the amounts of the eight hourly aspirations for the night were totaled (table 4). In approximately 25 per cent of the ulcer patients we were able to aspirate 300 cc. or more during the eight nocturnal aspirations. In not one of our normal subjects were we able to obtain 300 cc. of gastric juice during the similar eight aspirations (table 5).

4. When the output of free acid is expressed as milligrams of hydrochloric acid it will be noted from table 6 that of the studies on ulcer patients with the meat-fish proteins at the evening meal we obtained 300 mg. of hydrochloric acid or more during the eight night aspirations in 43 per cent of our studies. In 21 per cent of our studies on normal males and in only 10 per cent of our studies on ulcer patients with meat-fish protein foods at noon was 300 mg. (or more) of hydrochloric acid obtained.

5. It will be recalled that following the 6 p. m. meal the stomach was completely aspirated for the first time at 12 midnight. The data show (table 7) that the average amount of gastric contents aspirated at 12 midnight was approximately twice as much for the ulcer patients as for the normal subjects.

On the basis of these data it is apparent that (*a*) at 12 midnight the volume of gastric juice in the stomach of ulcer patients is greater than in the stomach of normal subjects, (*b*) more juice on the average may be aspirated at the end of each hour from the stomach of ulcer patients than from the stomach of normal persons (when aspirations are done hourly) and (*c*) the total volume obtained during the eight nocturnal aspirations is also greater for ulcer patients.

(B) Aspiration by Continuous Suction from 12 Midnight to 7 A. M. In the studies that have been presented, the stomach was aspirated only once each hour during the eight hour period of the night (from 12 midnight to 8 a. m.). As a greater volume of gastric juice was aspirated from patients with duodenal ulcer, the question naturally arose whether the greater volume was due to hypersecretion or whether it was the result of delayed emptying of the stomach. To appraise the latter factor, 74 additional night secretion studies were performed on 23 normal young men (39 studies) and 22 young male ulcer patients (35 studies) using the meal listed in table 1 at 6 p. m. but aspirating the stomach by means of continuous suction from 12 midnight to 7 a. m., after the stomach had previously been completely emptied at 12 midnight. We believed that by this method the factor of delayed gastric emptying, if present, could thus be detected.

The data indicated that: 1. The average volume of gastric juice aspirated from the ulcer patients during the seven hours of the night by continuous suction is approximately the same as that obtained from the normal persons. On the average, 485 cc. of gastric juice was obtained from the ulcer patients and 446 cc. from the normal subjects.

2. One ulcer patient appeared to show a tendency to "hypersecrete." During four night secretion studies on this patient we aspirated 1,143, 1,130, 350 and 1,310 cc. (the third night study was conducted four days after the second study). Were the studies on this 1 patient excluded, the average volumes for the two series of subjects would be 446 cc. for the normal subjects and 383 cc. for the ulcer patients.

3. The average number of milligrams of hydrochloric acid during the seven hours of continuous suction is slightly higher for the ulcer patients (773 mg.) when compared with that of the normal subjects of the same sex (603 mg.). However, when the 4 studies on the 1 ulcer patient who showed a tendency to "hypersecrete" are excluded, the average number of milligrams of hydrochloric acid obtained from the normal subjects is 603 compared with 501 for the ulcer group (tables 8 and 9).

It would thus appear that male patients with duodenal ulcer do not secrete in response to a standard meal a greater volume of gastric juice from 12 midnight to 7 a. m. than do normal male subjects.

COMMENT

I. *On Night Secretion Studies.*—1. Evidence presented heretofore by other investigators has indicated that patients with duodenal ulcer, as a rule, tend to show a hypercontinuous gastric secretion. Our results, however, tend to show that this is not the case with the group of subjects studied by us during the night. Rather, reference to tables 8 and 9 shows that the normal male group on the average has a slightly greater secretion than the ulcer patients of the same sex. The same tendency is noted in the maximum acidity values obtained hourly during the night (table 3) and in the average hourly hydrochloric acid concentration after 1 a. m. (when the data are analyzed statistically the variations between the normal subjects and patients with duodenal ulcer are not significant). However, it must be borne in mind that our series of patients did not present very acute ulcer "attacks" during the course of study.

2. It is of interest to note that the 2 ulcer patients (table 9, cases 2 and 14) in whom we found 2,500 mg. of hydrochloric acid or over during the seven hour period of the night presented more or less intractable ulcers clinically, though no complicating factors were found on physical or roentgen examinations. During the last three years each of these patients has had shorter symptom-free intervals and longer periods of ulcer distress and responded less favorably to medical management. We are wondering whether the hydrochloric acid output in milligrams during the night is of greater

clinical significance than the volume of secretion alone or the concentration of hydrochloric acid alone. More extensive work will need to be done on these and similar patients before definite conclusions may be drawn.

3. It would be difficult to compare our results on nocturnal human gastric secretion with those obtained by other workers. An analysis of their studies shows that each of the authors used a different test meal, gave the meal at different hours of the day or afternoon and aspirated samples of the gastric contents at varying periods of the night. The amounts of gastric juice aspirated by the other workers and the degrees of acidity obtained by them would naturally show variations as compared with ours.

II. *On Medical Management of Ulcer Patients.*—Our present day ulcer regimen aims mainly to combat the acid gastric juice factor. Frequent feedings of bland foods nearly always make up the ulcer diet, not only because these foods are nonirritating and leave the stomach readily, but also because of their neutralizing effect on acid. Meat and fish proteins are eliminated from the diet during the active ulcer period chiefly because of their stimulating effect on gastric secretion. Alkalis or aluminum hydroxide are nearly always prescribed because of their neutralizing effect on hydrochloric acid. Also atropine or belladonna is frequently used not only because of their antispasmodic effect but also because the paralyzing effect on the vagus nerve depresses gastric secretion of neurogenic origin.

There is nothing in our results that conflicts with this regimen. While ulcer patients may not secrete any more gastric juice or hydrochloric acid than normal human beings, our evidence indicates that they retain more of the juice and acid in their stomachs at any one time. This is presumably due to the delay in the emptying of the stomach, probably caused by spasm or edema or by the disturbed intestinal physiology which Berk, Rehfuss and Thomas[24] and Patterson and Sandweiss[25] have shown to exist in patients with duodenal ulcer, or perhaps by flattened or reversed gastroduodenal pressure gradients more recently described by Quigley[25a] and referred to by Ingelfinger.[25b] However, whatever the cause, and regardless of what part hydrochloric acid plays in the etiology of ulcer, it is universally accepted that acid is irritating to the ulcer. Cornell, Winkelstein and Hollander,[15] Dragstedt, Palmer, Schafer and Hodges,[7] Connell,[2] Berg,[5] Colp,[6] Andrus,[8] Ivy and his colleagues,[9] Val Dez,[16] Lannin and Baronofsky,[26] Kiefer,[27] Hinton and Church[28] and many others focus their attention on the acid gastric juice. Palmer[29] states that the free acid is probably responsible for the night pains by its action on the ulcer bed. The acid, therefore, should be neutralized to achieve comfort and to permit healing.

However, the usual regimen is confined to the day, and little attention is paid to the acid gastric juice during the night. In the light of our data it appears to us that, if hydrochloric acid is the chief factor in ulcer distress and delayed healing, more attention should be focused on the nocturnal phase of gastric secretion, regardless of how the ulcer patient "feels" during the night and regardless of the volume of gastric juice and concentration of hydrochloric acid. Free hydrochloric acid in the stomach during the night, even if the volume is less and the concentration is lower, may undo in part what neutralization accomplishes during the day. During the night there is no food in the stomach to have a diluting effect and to act as a neutralizing and adsorbing agent. While an effective gastric secretory depressant is still not available,[30] it appears to us that Winkelstein's[31] continuous intragastric milk-drip method and Woldman and Rowland's[32] modification of the latter by the use of aluminum hydroxide are to date the best means of controlling the nocturnal acid gastric juice. Milk and cream feedings during the night also are effective. These may be administered through a Levine tube while the patient is asleep.

Frequently, particularly in the later stages of the ulcer regimen, the diet of ulcer patients is increased to include meat broths, white fish, white meat of chicken, lamb chops and similar foods. Our data appear to indicate that it is advisable to include these foods in the noon meal rather than the evening meal. The total amount of acid (milligrams of hydrochloric acid) aspirated during the night was less for ulcer patients who had beef broth and fish during the noon hour than those who had these foods at 6 p. m. (table 6).

III. *On Surgical Management of Ulcer Patients.*—During the course of years many operations have been performed in an effort to "cure" patients with duodenal ulcer. Chief of these are gastrojejunostomy, pyloroplasty (Finney, Horsley or Judd type), local excision (cautery or knife), gastroduodenostomy, excision and gastroenterostomy, pyloric excision and gastroenterostomy, excision of the ulcer combined with reconstruction of the pyloric outlet, antral exclusion, fundusectomy, Billroth first and second partial resections, subtotal gastrectomy (Polya and Hoffmeister types), partial duodenectomy and subtotal resection, cholecystogastrostomy, denervation of the adrenal glands and ligation of the gastric arteries (physiologic gastrectomy).

Subtotal gastric resection is the treatment of choice at present when surgery is undertaken. It was at first thought that by subtotal gastric resection achlorhydria would result and the postoperative jejunal ulcer would thus be eliminated. However, recent reports indicate that jejunal ulcer and hemorrhage follow even this procedure. Hurst[33] stated in 1928 "I have seen several cases of secondary ulceration after partial gastrectomy and have collected over a hundred from the literature." (He did not describe the extent of gastrectomy.) Berg,[5] in a series of 225 subtotal gastrectomies for duodenal ulcer, found that 3.1 per cent of his patients developed symptoms due to new ulcerations and that

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[24] Berk, J. E; Rehfuss, M. E, and Thomas, J. E: Effect of Ulcer Acidity and Neutralizing Ability in Duodenal Bulb, Arch. Int. Med. **70:** 959 974 (Dec.) 1942.

[25] Patterson, T. L., and Sandweiss, D. J.: The Relationship Between Gastroduodenal Motility Phases and Symptoms Associated with Duodenal Ulcer in the Human, Am. J. Digest. Dis. **9:** 375-383 (Nov.) 1942.

[25a] Quigley, J. P.: Modern Explanation of Gastric Emptying Mechanism, Am. J. Digest. Dis **10:** 418 (Nov.) 1943.

[25b] Ingelfinger, F. J.: The Late Effects of Total and Subtotal Gastrectomy, New England J. Med. **231:** 321 (Aug. 31) 1944.

[26] Lannin, B G., and Baronofsky, I. D.: Surgical Treatment of Ulcer, Staff Bull, Univ. Minnesota Hosp. **15:** 58 66, 1943. Lannin, B G: Experimental Evaluation of a Satisfactory Operation for Ulcer, Surgery **17:** 712-741 (May) 1945.

[27] Kiefer, E. D.: Jejunal Ulcers and Recurrent Hemorrhages After Gastrectomy for Peptic Ulcer, J. A. M. A. **120:** 819 824 (Nov. 14) 1942.

[28] Hinton, J. W., and Church, R. E.: Selection of Operation for Patients with Gastric and Duodenal Ulcer, J. A. M. A. **120:** 816 818 (Nov. 14) 1942. Church, R. E, and Hinton, J. W.: Follow Up Results in Subtotal Gastric Resection for Ulcer, Am. J. Digest. Dis. **9:** 317-321 (Oct.) 1942.

[29] Palmer, W. L, and Heinz, T. E.: Mechanism of Pain in Gastric and Duodenal Ulcers: Further Observations, Arch Int. Med **53:** 269-308 (Feb.) 1934

[30] Ivy.[9] Gray, Wieczorowski and Ivy.[10] Sandweiss, Sugarman, Friedman, Saltzstein and Farbman.[11]

[31] Winkelstein, A.: New Therapy of Peptic Ulcer: Continuous Alkalinized Milk Drip into the Stomach, Am. J. M. Sc. **185:** 695-703 (May) 1933.

[32] Woldman, E E, and Rowland, V. C.: A New Technic for the Continuous Control of Acidity in Peptic Ulcer by the Aluminum Hydroxide Drip, Am. J. Digest. Dis **2:** 733-736 (Feb) 1936

[33] Hurst, A. F.: The Late Results of Partial Gastrectomy for Gastric and Duodenal Ulcer, Lancet **2:** 680 (Sept. 29) 1928.

10.2 per cent of the cases continued with mild general complaints, chiefly "vagotonic" (80.5 per cent of his cases had a follow-up of only one to five years). Colp[6] already reported 40 recurrences following 502 subtotal gastric resections (follow-up one to seventeen years; detailed follow-up not included in discussion). Kiefer,[27] in a series of 173 cases of subtotal resections for duodenal ulcer, found 6.9 per cent of the cases with jejunal ulcers and 4.6 per cent of cases with subsequent hemorrhages, a total of 11.5 per cent of failures following subtotal gastric resections for duodenal ulcer (postoperative follow-up six months to eight years, average between three and four years[33a]). He adds "The hope that this radical operation would solve the problem of postoperative jejunal ulceration, which has brought gastroenterostomy into disfavor, has been displaced by the realization that this complication can follow any operation which joins gastric mucosa to small intestinal mucosa." Hinton and Church[28] analyzed the end results in 97 cases of subtotal resections (average postoperative observation 2.9 years). They report 64 per cent cured and 24 per cent improved (12 per cent failures). Gatewood[34] reported 3 instances in his series of 30 subtotal resections, and Garrett[35] 2 in his series of 26. One of us (D. J. S.) has so far seen 3 cases with recurrences among 13 of his patients who were thus operated on and on whom he had a satisfactory follow-up. Aaron[36] cited a case in which symptoms continued after a gastroenterostomy, later after a partial resection and still later after a subtotal gastric resection. "At the time of the fourth operation the patient had a perforated peptic ulcer just about where the esophagus joins onto the stomach."

More recently Rienhoff[37] reported on the surgical treatment of 260 consecutive cases of duodenal ulcer. He states: "Regardless of the type of operation performed or the operator, where jejunal and gastric mucosa are brought together in the presence of acid chyme a certain percentage of patients will suffer from postoperative complications similar in all respects to the original complications of the primary ulcer for which operation was performed."

Persistence of acid is thought by many to be responsible for the failures following subtotal gastric resection.

Of late, as a result of failure to produce achlorhydria in many of the subtotal gastric resection cases, new surgical procedures have been recommended to control or eliminate the hydrochloric acid factor. Berg[5] and Colp[38] have cut the anterior fibers of the vagus nerve, subphrenically, in addition to the operation of subtotal gastrectomy. Dragstedt, Palmer, Schafer and Hodges[7] recently reported supradiaphragmatic section of the vagus nerves. Andrus[8] has implanted a pedicle graft of jejunum in the wall of the stomach. These operations, as was the case with many of the aforementioned operations, were devised in an effort to decrease or eliminate entirely the acid factor in patients with duodenal ulcer.

However, the fact is that the foregoing newer surgical procedures do not eliminate entirely the acid gastric juice. Winkelstein,[4] Dragstedt and his associates,[7] Klein and his associates[39] and Crohn[40] state that some patients still secrete hydrochloric acid following supradiaphragmatic vagotomy or infradiaphragmatic vagotomy in conjunction with partial or subtotal gastrectomy. Grossman, Dutton and Ivy[41] have shown that implantation of a jejunal flap into the stomach of dogs does not significantly alter the acid secretory response of the stomach to histamine stimulation in the dog. In addition, Kolouch, Dubus and Wangensteen[42] also present evidence suggesting that the jejunal graft is inefficient in controlling gastric and peptic secretion.

If hydrochloric acid plays a major part in the recurrence of duodenal ulcer, and if acidity is responsible for the postoperative jejunal ulcer, then merely decreasing the volume of acid gastric juice and merely lowering the hydrochloric acid concentration are not sufficient to prevent recurrences. During the night the continuous secretion of acid juice, regardless of its volume and its concentration, may still produce its corrosive effect.

With Crohn,[40] therefore, we question whether the results obtained warrant the risk involved in these new surgical procedures. Already Dragstedt and his associates,[7] in their report on surpradiaphragmatic section of the vagus nerves, state that "in 1 patient, similarly operated on in our institution by another surgeon, the ulcer pain recurred together with an active crater." An analysis of the 15 cases more recently reported by Dragstedt and Schafer[43] shows that 6 of the 15 patients continue to have distress. Gastroenterostomies were performed subsequently on 3 of these patients. Their report deals with a follow-up of only one to twenty-one months. Winkelstein[4] claims that cutting the vagus fibers above the diaphragm "may lead to harmful procedures in the abdomen." He advocates cutting the subanterior ones (subphrenically) in addition to partial or subtotal gastrectomy. Crohn,[40] however, states "I have never been convinced that cutting the anterior vagus is sufficiently adequate to warrant its inclusion in the routine operation of subtotal gastrectomy for ulcer. I have seen Dr. Colp, in 2 cases, cut both anterior and posterior vagus nerves above the diaphragm. No material benefit seemed to accrue to the patient, nor was the acidity materially reduced." He adds, further, "Great difficulty is encountered in cutting all of the filaments of both vagi above the diaphragm. To be successful it would require practically a complete circumcision of the esophagus; in 1 case at postmortem it was observed that in spite of the greatest diligence at the time of the operation several intercommunicating fibers between the vagus plexus seemed to remain intact. In 1 case which I observed, a supradiaphragmatic section of the vagus nerves did not clinically benefit a gastrojejunal ulcer."

Weinstein, Colp, Hollander and Jemerin[43a] reviewed the literature on gastric vagotomy and presented their findings in 6 patients on whom vagotomy was performed either alone or in conjunction with some other operation. In 2 of these cases complete vagotomy was attempted. They report that, (*a*) experimentally, little diminution in the nervous phase of gastric secretion is to be expected, while the other (chemical) gastric secretory phases are entirely unaffected; (*b*) in none of the 6 cases was clearcut evidence of beneficial therapeutic effect obtained; (*c*) a definite increase in operative risk and morbidity was encountered; (*d*) partial vagotomy does not influence the nervous phase of gastric secretion significantly, and even if it did, the other secretory phases may overshadow the nervous phase to such an extent as to render it unimportant. They conclude: "Accordingly, gastric vagotomy alone cannot be recommended as a therapeutic procedure: complete vagotomy because of its risk, difficulty of accomplishment, possible effect on motility and only questionable influence on secretion; and partial vagotomy because of the absence of any beneficial effects whatever."

[33a] Kiefer, E. D.: Personal communication to the authors, June 8, 1945.

[34] Gatewood, A. M.: Immediate Mortality and Late Result of Operations for Peptic Ulcer, Tr. Am. S. A. **48**: 142-145, 1930.

[35] Garrett, cited by Kiefer.[27]

[36] Aaron, A. H.: Personal communication to the authors, July 24, 1941.

[37] Rienhoff, W. F.: An Analysis of the Results of the Surgical Treatment of 260 Consecutive Cases of Chronic Peptic Ulcer of the Duodenum, Ann. Surg. **121**: 583-599 (May) 1945.

[38] Colp, R., cited by Crohn.[40]

[39] Klein, E.; Aschner, P. W., and Crohn, B. B.: The End Results of Partial Gastrectomy for Primary Gastric and Duodenal Ulcers, Tr. Am. Gastro-Enterol. A. **30**: 197-205 (May) 1933.

[40] Crohn, B. B., in discussion on papers of Berk and Frediani, Ivy[9] and Dragstedt, Palmer, Schafer and Hodges,[7] Gastroenterology **3**: 466 (Dec.) 1944.

[41] Grossman, M. I.; Dutton, D. F., and Ivy, A. C.: An Attempt to Confirm the Alleged Inhibitory Effect on Gastric Secretion of Jejunal Pedicle Grafts in the Wall of the Stomach, Surgery **17**: 685-692 (May) 1945.

[42] Kolouch, Fred, Jr.; Dubus, A. T. S., and Wangensteen, O. H.: The Pedicled Jejunal Transplant into the Gastric Wall, Surgery **17**: 667-685 (May) 1945.

[43] Dragstedt, L. R., and Schafer, P. W.: Removal of the Vagus Innervation of the Stomach in Gastroduodenal Ulcer, Surgery **17**: 742-749 (May) 1945.

[43a] Weinstein, V. A.; Colp, R.; Hollander, F., and Jemerin, E. E.: Vagotomy in the Therapy of Peptic Ulcer, Surg., Gynec. & Obst. **79**: 297-305 (Sept.) 1944.

It is to be borne in mind that the secretion of acid gastric juice is only one of many functions under vagus control. The organs supplied by the vagus are numerous and their functions of inestimable value. The action of the vagus on these organs is still not clearly known for man. While the duodenum and the pancreas probably receive vagus nerve fibers by other routes, there is a direct innervation of these organs by branches of the vagus which are sectioned in the foregoing operative procedures. Evaluation of such vagotomy operations on functions such as pancreatic secretion must be made. An additional point to be remembered is the fact that section of the vagus nerve abolishes various reflexes of visceral origin which are definitely protective in character (such as the "receptive relaxation" of the duodenum).

With reference to the Andrus operation, Saltzstein and Kurtz [44] definitely proved that such an implantation, in Mann-Williamson dogs, does not prevent the formation of the typical jejunal ulcers. Of 6 Mann-Williamson dogs with a pedicle graft of the jejunum implanted in the stomach wall, 5 developed Mann-Williamson ulcers; the sixth dog, while not showing a jejunal ulcer, showed a large ulcer in the center of the jejunal flap that was implanted in the stomach.

These experiences surely dictate conservatism when surgery is considered or is undertaken for duodenal ulcer in man.

At present we know of no medical or surgical procedure that will completely eliminate the nocturnal gastric acid factor for any appreciable period of time in all ulcer patients, unless it is total gastrectomy. But even then are we sure that jejunal ulcers might not follow as a result of trauma, tissue susceptibility or ulcer diathesis?

SUMMARY

While the number of studies in our series are too few for definite conclusions, our data on 150 night secretion studies conducted on both normal subjects and patients with duodenal ulcer, nevertheless, warrant the following impressions:

1. Both normal persons and patients with duodenal ulcer secrete acid gastric juice during the night even when the 6 p. m. meal consists of foods usually allowed ulcer patients.

2. Following a fairly well balanced meal at 6 p. m. (which included beef broth and fish) the nocturnal gastric juice from patients with duodenal ulcer is approximately of the same hydrochloric acid concentration as is the gastric juice from normal subjects of the same sex.

3. Following this meal at 6 p. m. the nocturnal volume of gastric juice in patients with duodenal ulcer (as obtained by continuous suction) is on the average not greater than that of normal subjects of the same age and sex.

4. When intermittent single aspirations are performed during the night (not continuous aspiration) a greater quantity of gastric juice is found in the stomach of duodenal ulcer patients as compared with that found in the stomach of normal subjects of the same sex. The greater volume is due, however, not to a state of hypersecretion but probably to a state of delayed gastric emptying.

5. Only 1 of our 22 ulcer patients may be interpreted as probably having a tendency to gastric hypersecretion. More studies by means of continuous suction on both ulcer patients and normal subjects are essential before definite conclusions may be drawn.

6. If hydrochloric acid is the chief factor in ulcer distress and delayed healing, it is essential that more attention be focused on the nocturnal phase of gastric secretion regardless of how the patient "feels" during the night and regardless of the volume of gastric juice and concentration of hydrochloric acid. While ulcer patients may not secrete any more gastric juice or hydrochloric acid than normal persons, our data indicate that ulcer patients retain more of the juice and acid in their stomachs at any one time. During the night, therefore, the free hydrochloric acid in the stomach may undo in part what neutralization accomplishes during the day, as during the night there is no food in the stomach for the meal liquids to have its diluting effect and for the meal solids to perform the neutralizing and acid-adsorbing power. Feedings during the night are therefore essential.

7. When meat and fish are added to the diet of ulcer patients it is advisable to include these foods during the noon meal instead of during the evening meal. When the noon meal (instead of the evening meal) includes these foods, the stomach contains less free acid during the night.

8. Conservatism is advisable when surgery is considered or is undertaken for duodenal ulcer in man.

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ABSTRACT OF DISCUSSION

DR. WALTER C. ALVAREZ, Rochester, Minn.: This study is an important one because it has long seemed probable that one of the most important factors in the production of ulcer is the continuance of secretion in the stomach after buffering food has all passed into the bowel and the patient has gone to sleep. The next question is: If the patient with ulcer continues to secrete acid gastric juice after his stomach is empty why does he do it? The answer is to be found in a statement made to me by dozens of wives of men with ulcer who say that the husband is a very restless sleeper who seems usually to be half awake. Often he tosses or groans or talks or grinds his teeth until the wife has to move to a separate room. Many an ulcer patient has told me that half of his brain seems to keep going all night so that he wakes with his day's work all planned. Perhaps, then, it is a characteristic of many men with ulcer that during sleep some lower part of the brain does not quiet down properly but keeps sending off impulses, some of which keep secretion going in the stomach. There are a number of reasons why the observations of Sandweiss and his associates do not agree entirely with the results published in the past. It would seem probable that the essential point in the maintenance of an ulcer is not so much that the titer of the acid be high as that secretion continue after buffering food is gone. One would expect many persons with ulcer not to have a typical hypersecretion, and one would expect to find many "normal" controls to have hypersecretion and a temperament ideal for the formation of a bad ulcer. Probably the only reason why they never get an ulcer is that they fail to get from their ancestors certain genes which are necessary. They are like those thousands of typical epileptic persons who have never had a fit. But with all these difficulties in the way of demonstrating differences between the average secretory curves of the controls and the patients with ulcer, Sandweiss and his associates have confirmed the fact that the person with ulcer tends to go on secreting after his stomach has emptied for the night. This is the important point. One way of combating this tendency and the resultant danger to the person is to have the victim set an alarm clock to wake him around midnight so that he can then take a glass of milk, perhaps with some antacid. If he has trouble going back to sleep he can take a sedative at bedtime. During the day when the man is awake he may feel pain as soon as the acid begins to dig into his ulcer and then he can save himself by taking food. During the night he may go on sleeping until much injury has been wrought. It is disappointing to hear that the operation of cutting both vagus nerves is not always giving the desired result. One would expect most of the nerves carrying pain from the stomach and duodenum to go out to the spinal cord by way of the splanchnic nerves.

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[44] Saltzstein, H. C., and Kurtz, I. J.: The Effects of Pedicle Jejunal Transplants in the Stomach on Mann-Williamson Dogs, Surg., Gynec. & Obst., to be published.

Dr. Burrill B. Crohn, New York: The idea that duodenal ulcer patients show a continuous night secretion is more or less an established credo and dates back to early work by Einhorn among others. The interesting point about this paper is not so much the confirmation of the high acidity values and the hypersecretion which is seen in ulcer patients but is the fact that almost identical values were found in normal men and even in some normal women as controls. This point only emphasizes the fact that the ulcer is not attributable to 10 or 20 units of increased acidity or some such figure. Following subtotal gastrectomy, ulcer may recur when even a small amount of free acid is present. Many of the purely functional cases which we included in the old category of Reichmann's disease showed high acid curves and continuous hypersecretion for six hours after a test meal and yet ulcer did not develop. That unknown quantity the x-factor, which disposes to ulcer, is missing in the constitution of these patients. Previous criticisms of these secretory studies have been made on the ground that the complete aspiration of the stomach at midnight acted to discourage further secretory activity during the latter part of the night. Such criticism is not valid since identical conditions prevailed in the study both of the control and of the ulcer cases. The important conclusion from this paper is the necessity for the treatment of the patient during the night by some means, either frequent feedings or continuous drip of milk or of colloidal suspensions, to obtain a neutralization of the night secretion in the ulcer cases. The authors reflect some hesitation in accepting the operation of subtotal gastrectomy for ulcer as a promising procedure. As each year progresses, experience widens; the mortality of the operation has fallen almost to a disappearing point, and the percentage of recurrences remains materially low. In spite of the recurrences, which may range around 4 to 6 per cent, subtotal gastrectomy is the operation of choice and is followed by anacidity or by reduction of acid secretion in over two thirds of the cases. If the supraphrenic bilateral vagotomy can be shown to have a physiologic basis in reducing or eliminating acid gastric secretion in all of its three phases, this would be an ideal procedure in itself and might possibly obviate the necessity for a resection. But further studies on the alterations of gastric secretion following complete and successful vagotomy will be necessary in order to convince physiologists and clinicians of the favorable alterations in gastric chemism following such a procedure and its consequent beneficial effect on the healing of the lesion.

Dr. A. C. Ivy, Chicago: The observations presented in this paper represent a large amount of work as well as thought regarding the design of the various experiments. In work of this type it would appear to be important to keep several factors as constant as possible in the group of patients under study. One of these factors is the nature of the previous meal. The importance of this factor is indicated by the authors' results, which indicate that the acidity of the night secretion of the ulcer patients was greater when the evening meal contained beef broth and fish than when the same meal was given at noon. A second factor is the nature of the medication given with or between the meals. Alkalis frequently cause a "rebound secretion" whereas aluminum preparations do not. Dr. Sandweiss informs me that the only patient in his group that took considerable alkalis was the one (patient 2) who manifested a hypersecretion. A third factor is the state of activity of the ulcer. There is some evidence in the literature showing that the secretory response to an alcohol test meal is less when the ulcer becomes inactive. Dr. Sandweiss informs me that with the exception of the "hypersecretor" the patients they studied were relatively symptom free or the distress was mild and intermittent. A fourth factor is that all duodenal ulcer patients, as shown in the cases in this paper, in the paper of Dr. Dragstedt and in other papers on this subject, do not manifest a prolonged secretory response to stimuli or a high interdigestive secretion. Even under controlled laboratory conditions only approximately 75 per cent of dogs with postoperative jejunal ulcer manifest a definite prolongation of the secretory response to a test meal in regard to the free acidity of the gastric contents. However, such ulcer dogs, as was true in most of the ulcer patients mentioned in this paper, uniformly show an increase in the volume of gastric contents. Our studies on gastric secretion in the ulcer patient have not involved a study of the night secretion. My associates and I have studied the interdigestive secretion in approximately 100 duodenal ulcer patients fourteen hours after the last meal. We have studied the rate of secretion only when the ulcer is in the very active stage. We have found the acid output (volume × free acid concentration) over a period of one or two hours to be on the average approximately 100 per cent greater in duodenal ulcer patients, when the ulcer is active, than in asymptomatic subjects without a history of dyspepsia. However, we find, as others, that some asymptomatic subjects secrete as much interdigestive secretion as patients with an active duodenal ulcer. Thus the factor which I suspect caused the observations of these authors to be somewhat out of line with those of others is that the ulcer in their patients was relatively inactive. The factors of the "rebound secretion" after alkalis and the nature of the last meal has to be considered also, though it is probable that patients may vary considerably in this regard. We need more data than we now possess on the "night secretion" of patients when their ulcer is clinically active and inactive. Since it has, in my opinion, been established that free acidity is one of the chronicity factors in peptic ulcer, the authors are justified in calling attention to the significance of the "night secretion" especially in that group of patients who tend to be refractory to management.

Dr. Walter Lincoln Palmer, Chicago: The authors are to be congratulated on an interesting study of nocturnal gastric secretion. The observations vary somewhat from those obtained by other workers, notably Winkelstein, Val Dez and Mears, in that Sandweiss and his associates have found a higher fasting or nocturnal secretion in normal persons and less evidence of hypersecretion in patients with duodenal ulcer. The discrepancy may be due in part to the fact that the present investigators were careful to pick healthy normal males as their control subjects. It is evident that more work needs to be done on normal postdigestive and fasting secretion. It is clear, however, that the term "hypersecretion" is valid only with respect to the volume of secretion, not concentration of acid. Ivy, Bloomfield and others have considered the higher fasting secretory rates as rather typical of duodenal ulcer. In general this has been my observation also. Furthermore, our unpublished observations and those of Dragstedt also indicate a higher nocturnal secretion in duodenal ulcer than those described in the present paper. The cases studied by Sandweiss and his associates were uncomplicated ones with mild distress, whereas my associates and I have studied particularly the complicated ones, perhaps with more distress. Patient 2, whom the authors class as a hypersecretor and suggest excluding from their series, seems more comparable to those studied by us. There is some evidence that an active painful ulcer reflexly increases both gastric secretion and motility and that the action of the normal irritant (hydrochloric acid) thus tends toward the establishment of a vicious cycle. The implications of the nocturnal secretion in the treatment of peptic ulcer were recognized by Sippy and his associates and have been in the minds of students of the ulcer problem ever since. There is little doubt that the drip methods do give better continuous neutralization of the acid secretion than other procedures. In the case of duodenal ulcer, continuous aspiration of the stomach may accomplish the same result in terms of the p_H at the site of the ulcer. However, neither of these procedures is practicable for long periods, and the treatment of ulcer must be continued for a long time. The authors have rendered a signal service by emphasizing conservatism in the surgical treatment of peptic ulcer and by again calling attention to the importance of the night secretion.

Dr. Marcus H. Sugarman, Detroit: The following pertinent points need to be reemphasized: 1. Most of our ulcer patients had only mild distress at the time the study was conducted. It is possible that patients with very active ulcer symptoms might show a greater volume of nocturnal secretion and a higher acid concentration, as shown by Dragstedt, Palmer and others. 2. Our controls (in the continuous suction study) were perfectly normal healthy males, free from any complaints whatever. This, at least in part, explains the difference between our results and those of Mears. 3. When meat and fish as a source of protein are added to the noon meal instead of to the evening meal, the stomach contains less free acid during the night. In management of ulcer patients therefore it is advisable to add these foods during the noon meal instead of during the evening meal. 4. During the night, hydrochloric acid in the stomach, unless neutralized, may undo in part what neutralization accomplishes during the day. It is therefore suggested that, in the care of patients with acute ulcer distress, feedings be maintained during the night hours. 5. Our studies also indicate that patients with duodenal ulcer, when presenting only mild distress, do not "hypersecrete." While it is true that a greater volume of gastric juice may be aspirated at any time during the night as compared with normal individuals, the greater volume is very likely not due to hypersecretion.

Dr. M. H. F. Friedman, Philadelphia: Viscerovisceral reflexes perhaps may be responsible for the greater secretion shown by the ulcer patient during a period when he has accentuated ulcer distress. As Dr. Palmer has suggested, the acid gastric juice may perhaps act as an irritant to initiate and maintain this reflex hypersecretion and thus establish a vicious cycle. Possibly during periods of distress there is a lowering of the threshold of sensitivity of the duodenum to acid. Drs. Pincus, Thomas, Rehfuss and I found in dogs that introduction of acid in the small intestine decreased or arrested completely the gastric secretion provoked by feeding meat or injection of insulin. This inhibitory effect, however, occurred only when the p_H of the intestinal contents was depressed to 2.5 or lower. Somewhat similar results were obtained in man by Shay and his co-workers. These workers also found that intestinal instillation of acid was less effective in suppressing gastric secretion in the ulcer patient than in normal healthy persons. It is also interesting to learn that Berk, Rehfuss and Thomas found that the duodenal contents after a test meal have a lower p_H in ulcer patients than in normal subjects. Histamine frequently has been suggested as playing a part in the hypersecretion of gastric juice by the patient with an active ulcer. In this connection the observations of Pincus, Friedman, Thomas and Rehfuss are perhaps significant. These investigators found that, whereas gastric secretion stimulated by food or insulin could be inhibited by lowering the intestinal p_H by intraduodenal instillation of acid, secretion stimulated by histamine was not affected at all.

Dr. David J. Sandweiss, Detroit: Dr. Crohn refers to our hesitation in accepting the operation of subtotal gastrectomy for duodenal ulcer as a promising procedure. He states that the mortality of the operation has fallen almost to a disappearing point and that the percentage of recurrences ranges around 4 to 6. While the postoperative mortality is low for the leading institutions of the country, I have been unable to find accurate figures for the country as a whole. It is also important to bear in mind that, exclusive of the 4 to 6 per cent of recurrences (which I believe refer to ulcerations as evidenced by positive roentgen findings), 4 to 5 per cent have subsequent hemorrhages. In addition, there is a group of gastrectomized patients with moderate to severe postprandial symptoms. In the August 1945 issue of *Gastroenterology,* Berkman and Hack say "We have found that recurrent ulceration is not the only possible unfavorable postoperative reaction with which we may be confronted. There still are patients having gastrointestinal symptoms, and some of them are incapacitated to a degree far greater than some patients who have recurrent ulcers." Glaessner in 1940 and Jordan in 1941 discussed the postprandial symptoms. Mateer in 1941 estimated that postprandial symptoms occurred in approximately 14 per cent of his cases. Church and Hinton reported the results of partial gastrectomy in 104 cases. Some of the patients classified as benefited had weakness, loss of weight or anemia after the operation. Miller in 1942 stated that 17 patients of 240 who were improved following subtotal gastrectomy complained of vague symptoms such as weakness, pallor, nausea and loss of weight. Custer, Butt and Waugh made a statistical study of 500 consecutive cases and reported that typical postprandial symptoms which have been designated as the "dumping syndrome" developed in 28 (5.6 per cent) of the 500 cases. Follow-up data were obtained for five to eight years after operation in 24 of the 28 cases. In 21 the symptoms had continued. The symptoms were so severe that they interfered with the work of 10 patients. Six were unable to work and might be classified as gastric cripples. In addition, there is a group of patients who develop pernicious anemia or pernicious anemia-like blood pictures following this operation. When we take all of these facts into consideration (postoperative mortality, recurrent ulceration, subsequent hemorrhages, the "dumping syndrome," inanition and the anemias) one is justified in saying that subtotal gastric resection is not the answer to our ulcer problem, though I agree with Dr. Crohn that, when surgery becomes a necessity, subtotal gastrectomy is the operation of choice at present. With regard to newer surgical procedures, would it not be advisable to check these first experimentally?

PHYSOSTIGMINE FOR MUSCLE SPASM IN RHEUMATOID ARTHRITIS

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Following the work of Kabat and Knapp [1] reporting the use of neostigmine in the treatment of muscle spasm in poliomyelitis, our attention was drawn to the problem of muscle spasm in rheumatoid arthritis and allied conditions. The incidence of rheumatoid arthritis is so great and the various forms of therapy so numerous that it should be our purpose to reduce the treatment of this disease to the simplest denominator. Any form of therapy that tends to minimize deformities should be considered worthy of consideration. Our object in this writing is to (1) prevent deformities in rheumatoid arthritis, (2) lessen the severity of deformities already formed, (3) simplify the drug used, (4) lessen the cost to the patient and (5) relieve pain.

From the Arthritis Clinics of the Philadelphia General Hospital and Jefferson Medical Hospital and the special arthritis wards of the Philadelphia General Hospital.

So that there would be no discrepancies as to the uniformity of physostigmine and its administration simultaneously with atropine, hypodermic tablets containing both physostigmine and atropine were obtained. They were supplied by Endo Products, Inc., of New York.

William Levin, Ph.G., chief druggist at the Philadelphia General Hospital, assisted early in this experiment. He obtained and supplied us with physostigmine. Mrs. Marie Craig, physical therapist, Mr. Francis Naselli, physical therapist of the Division of Physical Medicine at the Philadelphia General Hospital, and Mrs. Phyllis Natkow, laboratory technician, helped in the preparation of clinical material for this problem. The nursing staff of the clinics and the wards have been extremely helpful in both institutions.

[1] Kabat, Herman, and Knapp, M. D.: The Use of Prostigmine in the Treatment of Poliomyelitis, J. A. M. A. **122:** 989 (Aug. 7) 1943.

In April 1944 we published a preliminary report[2] on the use of neostigmine in the treatment of muscle spasm in rheumatoid arthritis. The present report, while supplementary, tends to bring to light new facts relative to the use of an old drug. Because of the expense involved in the use of large quantities of neostigmine for a problem of such proportions, it was found necessary to resort to less expensive drugs. Accordingly physostigmine was selected, since it is very closely related in action to neostigmine, both drugs belonging to the group of anticholinesterase drugs.

In our study we find that there were fewer untoward reactions with physostigmine than with neostigmine. The lesser frequency of complaints with physostigmine made for better patient cooperation. We were also impressed with the observation of fewer complaints of pain from local reactions after injection of physostigmine salicylate than after injection of neostigmine methylsulfate. It is because of this and for reasons aforementioned that we have substituted physostigmine for neostigmine in all our studies. As will be noted, physostigmine bears out our original premise in respect to clinical improvement. It relieves muscle spasm and therefore relieves pain in many instances. The relief is common to a large proportion of cases and is frequently encountered within fifteen to thirty minutes after injection. Further studies with neostigmine bromide administered by mouth do not warrant its continued use for this purpose.

There can be no question concerning the existence of muscle spasm and pain on pressure or stretching of the affected parts. One need only to manipulate a joint of the arthritis victim to confirm this. However, these facts have not been emphasized in the cases of arthritis of long standing.

In rheumatoid arthritis there remains a state of spasm of the muscles even though the joint process has become quite inactive. Palpation of the hamstring muscles in an acutely or subacutely inflamed knee joint will demonstrate this. Spasm can also be elicited about other joints. Both the flexor and the extensor muscles are usually involved; however, the deformity that will result is usually commensurate with the force exerted by the most powerful muscle against its antagonist. This of course depends on the extent of the involvement of the muscle or tendon; the more extensive the involvement, the greater the muscle spasm. Should the flexor be the more powerful muscle but the extensor be most involved, the greater pull will be in the direction of the extensor. However, if there is an equal amount of irritation to the two muscles, the deformity will doubtless be in the direction of the more powerful flexor. This spasm is manifested clinically in various types of painful deformities. If this hypothesis is true, relief of such muscle spasm should result in increased comfort to the patient and a consequent diminution or complete prevention of deformities.

In poliomyelitis the so-called muscle spasm has been treated with apparent success by the use of fomentations in accord with the Kenny technic.[3] In subacute and chronic poliomyelitis, neostigmine (prostigmine) has been used with encouraging results by Kabat and Knapp.[1] Our purpose has been to apply the principles set forth by the latter investigators to the muscle spasm accompanying rheumatoid arthritis, fibrositis, bursitis and related conditions.

Kabat and Knapp believe that neostigmine has a direct action on the spinal cord which may be depressing in nature in some instances and stimulating in others, depending on the group of nerves which are acted on. In cases of rheumatoid arthritis, we believe the action is probably depressive, as the muscle spasm is usually promptly alleviated.

Encouraging results with neostigmine in the relief of muscle spasm in rheumatoid arthritis and bursitis, as well as relief of neuromuscular dysfunction in chronic disability resulting from trauma and cerebral thrombosis, were reported by Kabat.[4] Further evidence that muscle spasm is relaxed by the use of neostigmine is reported by Brainerd and his associates[5] and by Fox and Spankus.[6] The role of neostigmine in the treatment of muscle spasm and the mechanism of its action have recently been reviewed.[7]

PROCEDURE

In the special arthritis wards of the Philadelphia General Hospital we have availed ourselves of the opportunity of studying the effects of physostigmine salicylate on muscle spasm in rheumatoid arthritis. One must take cognizance of the fact that bed rest alone will in many instances give a measure of relief from pain and even some relaxation of muscle spasm.

Since controls were necessary, the patient was first given a hypodermic injection of isotonic solution of sodium chloride daily for one week. Joints were measured before and after the period.[8] If a reasonable amount of improvement was not noted, the patient was then given daily injections of 0.6 mg. ($\frac{1}{100}$ grain) of atropine sulfate. Atropine eliminates the unpleasant parasympathetic side effects of physostigmine as well as of neostigmine, and it was our intention to use atropine in conjunction with physostigmine for the relief of muscle spasm. Joints were again measured before and after one week's treatment and the patient was interrogated as regards pain. In the event that treatment thus accorded produced relief from muscle spasm, the same treatment was continued until no more improvement was obtainable. When it was established that saline or atropine injections produced no relief, physostigmine therapy was instituted. The usual procedure was to give 0.6 mg. each of physostigmine and atropine sulfate simultaneously. If no relaxation of muscle was obtainable with this dose, physostigmine was increased to 1.2 mg. ($\frac{1}{50}$ grain).

In this way we felt that we could presume to conclude whether the improvement obtained was coincident with rest in bed, the use of atropine or the physostigmine-atropine combination.

The dose of atropine sulfate was increased or decreased depending on the reaction encountered. In the presence of an unusual amount of dryness of the throat and/or dilatation of the pupils, the dose of atropine was reduced to 0.4 mg. ($\frac{1}{150}$ grain) depending on whether or not relaxation of muscle spasm could be elicited. However, if there was little or no relaxation of muscle spasm, atropine was maintained at the dose of 0.6 mg. while the dose of physostigmine salicylate was increased to 1.2 mg. On the other hand, if the patient complained of dizziness, salivation, pain in the abdomen or nausea, the dose of physostigmine was reduced or the atropine increased as the case may be.

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[2] Trommer, P. R., and Cohen, Abraham: The Use of Neostigmine in the Treatment of Muscle Spasm in Rheumatoid Arthritis and Associated Conditions (Preliminary Report), J. A. M. A. **124:** 1237 (April 29) 1944.

[3] Pohl, J. F., and Kenny, Elizabeth: The Kenny Concept of Infantile Paralysis, St. Paul, Bruce Publishing Company, 1943.

[4] Kabat, Herman: Studies on Neuromuscular Dysfunction, Pub. Health Rep. **59:** 1635 (Dec. 22) 1944.

[5] Brainerd, Henry; Katz, H. J.; Rowe, A. P., Jr., and Geiger, J. C.: The Clinical Manifestations of Poliomyelitis, J. A. M. A. **128:** 718 (July 7) 1945.

[6] Fox, M. J., and Spankus, W. H.: The Value of Neostigmine in Acute Anterior Poliomyelitis, J. A. M. A. **128:** 720 (July 7) 1945.

[7] Kabat, Herman: [illegible] Dysfunction: VI. Neostigmine Therapy of [illegible] M. Ann. District of Columbia **14:** 248 (J[illegible]) Neuromuscular Dysfunction, editorial, J. A. M. A. 12[illegible] 4) 1945.

[8] All involved joints were measured in respect to movements, degree of pain, contractures and so on, at weekly intervals throughout the period of study.

Table 1 is a summary of the types and number of cases treated in the arthritis clinics and represents some of those treated in the special wards for arthritis.

Table 2 represents the cases treated only in the special arthritis wards. Opportunity was had in each instance to follow the procedure of controls as already described.

These following cases represent those hospitalized for the purpose of control:

Case 1.—*Felty's syndrome. Duration ten months. History.*—M. B., a woman aged 21, whose chief complaint was "pain and swelling in joints," had been well until ten months before, when she noticed a recurrent pain in the joints of the right hand. This would persist for a few days and remit for a few. Soon she began to have pain in the wrists, elbows, knees and feet. More recently the shoulders and the temporomandibular joints became involved. After about five months the affected joints began to swell, and soon after there was considerable limitation of motion.

Table 1.—*Types and Number of Cases Treated in Arthritis Clinics*

	Number of Cases	
	Improvement	No Improvement
Rheumatoid arthritis	120	33
[illegible]	13	5
[illegible]	10	1
[illegible]	10	1
[illegible]	1	2
Sciatica	2	2
Osteoarthritis of the hip	2	0
Total	149	44

The patient had been under a physician's care throughout the illness. Two and one-half months before entry she went to a hospital, where she was put to bed. She came to this hospital because of her inability to pay for care.

There was nothing of importance in the past medical history except that she had some pain in the joints at the age of 9. This was not accompanied by swelling, nor was it necessary for her to be confined to bed.

Physical Examination.—The patient, who was poorly developed, weighed 82½ pounds (37.4 Kg.). She was cooperative and noncomplaining, though in apparent discomfort. She lay in bed, where she had been for the past three months. The head, neck and chest were normal except that the apex of the heart was at the fifth intercostal space at the midclavicular line, with a soft systolic murmur. The abdomen showed a firm spleen, palpable 3 fingerbreadths below the costal margin. The liver was palpable 1 fingerbreadth below the costal margin.

The left axilla showed three discrete lymph nodes, each about the size of a large almond. Enlarged lymph glands were also palpable in both groins.

The hands showed fusiform swelling of all the fingers. The wrists were swollen moderately. There was limitation of motion of the elbows to about 85 per cent of normal.

There was complete range of motion of the shoulders. The right knee showed 90 per cent of normal extension. The left knee showed 70 per cent of normal flexion. Both knees were swollen and tender. There was no redness. The feet were tender and swollen.

The impression was of Felty's syndrome.

Initial studies revealed a hemoglobin of 11 Gm., red blood cells 3,880,000, white blood cells 5,650, polymorphonuclears 66 per cent, lymphocytes 26 per cent, mononuclears 6 per cent, basophils 2 per cent, hypochromia, blood protein 6.3 mg. per hundred cubic centimeters, albumin 4.2 mg. per hundred cubic centimeters, globulin 2.1 mg. and sedimentation rate 38 mm. (Westergren). Blood and urine studies were otherwise negative. Biopsy of a left axillary lymph node Aug. 28, 1944 revealed probable lymphatic hyperplasia.

Table 2.—*Cases Treated Only in Special Arthritis Wards*

Name	Type of Arthritis	I. S.	A. T.	P. A.
1. M. B.	Generalized (rheumatoid)	N. I.	N. I.	I.
2. C. S.	Generalized (rheumatoid)	N. I.	N. I.	I.
3. E. W.	Spine (rheumatoid)	N. I.	N. I.	N. I.
4. J. L.	Hips (rheumatoid)	N. I.	N. I.	I.
5. E. H.	Spine (rheumatoid)	N. I.	N. I.	I.
6. L. H.	Generalized (rheumatoid)	N. I.	N. I.	I.
7. A. J.	Generalized (rheumatoid)	N. I.	N. I.	I.
8. M. W.	Generalized (rheumatoid)	N. I.	N. I.	I.
9. I. P.	Knees (mixed)	N. I.	I.	
10. B. H.	Generalized (rheumatoid)	N. I.	N. I.	I.
11. S. D.	Generalized (rheumatoid)	N. I.	N. I.	I.
12. J. McG.	Generalized (rheumatoid)	N. I.	N. I.	N. I.
13. J. C.	Generalized (rheumatoid)	N. I.	N. I.	N. I.
14. M. K.	Generalized (rheumatoid)	N. I.	N. I.	N. I.

Key: I. S., isotonic solution of sodium chloride; A. T., atropine sulfate; P. A., physostigmine and atropine; N. I., no improvement; I., improvement.

Aside from stiffness and pain in various joints, the patient had a contracture of the right knee. There was distinct spasm of the hamstring muscles. She was placed on a hard surface, and flexion and extension were measured by estimating the distance from the medial surface of popliteal space to the hard surface. The hamstring muscles were spastic. For one week the patient received a daily sterile hypodermic without benefit. During the second week the patient received a hypodermic injection of 0.6 mg. of atropine sulfate daily without benefit.

Physostigmine salicylate 0.6 mg. with atropine sulfate 0.6 mg. was administered daily by hypodermic from then on. The result obtained is illustrated in table 3, using the measurements of the right knee only.

On September 25 it was decided to replace the physostigmine-atropine by a sterile hypodermic. The relaxation persisted for a few days and the muscle spasm returned. The flexion deformity now measured the same as on September 11. When physostigmine-atropine therapy was resumed, the muscle spasm promptly disappeared. Under this therapy the patient noted that there was decided improvement in stiffness and pain. However, since the improvement in the contractures seemed to be at a standstill, it was felt that additional therapy was necessary for the relief of the rheumatoid arthritis.

A transfusion of 500 cc. of whole blood was given. Because of the weight loss, insulin 5 units three times daily after eating was administered. Eight weeks later the patient weighed 100 pounds (45 Kg.). The blood count was hemoglobin 12.5 Gm., red blood cells 4,000,000, white blood cells 6,100. The patient was very much improved.

Table 3.—*Measurements of Right Knee in Case 1*

Date	Flexion, Inches	Extension, Inches
9/11/44	11	2¾
9/13/44	11½	2
9/15/44	12	1½
9/17/44	11½	1
9/19/44	12	¾
9/21/44	10¾	½
9/23/44	11¾	⅝
9/25/44	12	⅝
9/27/44	11	¼
9/29/44	11¾	¼

Gold therapy was now instituted. This consisted of 1.24 mg. of aurothioglucose 10 mg. given intramuscularly semiweekly for four doses, 25 mg. semiweekly four doses, 50 mg. semiweekly four doses and 100 mg. weekly nine doses. The course was completed Jan. 19, 1945. At that time the patient was free from discomfort. Aside from spindle shaped deformities of the fingers, for all intents and purposes she had made a complete recovery. The spleen was no longer palpable; however, glands were still palpable in the axilla. At the present time she is getting a second course of gold. She is working at her former position and weighs 113 pounds (51 Kg.).

On May 15 there was no evidence of enlarged spleen, and the axillary and inguinal lymph nodes were no longer palpable. The condition of the patient is excellent. Her weight is 117 pounds (53 Kg.).

Case 2.—*Spondylitis of fifteen years' duration. History.*—R. M., a man aged 44, seen March 16, 1945, complained of pain in the back extending from the neck to the lower part of the back and down the legs. He had had pain in the back off and on for fifteen years. At the onset, which was gradual, there were soreness and stiffness in the lower part of the back. This was growing progressively worse until a brace was resorted to. In about six months the patient made a "complete recovery." A few months later the same condition returned and he had grown slowly but steadily worse. He attended various clinics throughout the country, where he was given intensive physical therapy, orthopedic appliances and even a bone graft without relief.

Physical Examination.—This was essentially negative except for a spondylitis. The height was 5 feet 6 inches (168 cm.), while the patient stated that his normal height was 5 feet 9½ inches (175 cm.). He was round shouldered. Examination of the back showed extreme muscle spasm extending from the cervical to the lower dorsal region. The neck showed only about 30 per cent of normal range of motion laterally. Extension was nil, while the head was in the position of flexion. The patient stated that he got but little sleep because of pain. He had to use three large pillows in order to feel one against his head. Examination of the secretion from the prostate gland showed myriads of pus cells.

Laboratory studies revealed hemoglobin 98 per cent, red blood cells 4,920,000, white blood cells 7,000, sedimentation rate 35 mm. (Westergren), blood urea 9 mg., blood uric acid 2.8 mg., reaction of urine alkaline, albumin a trace, microscopically little amorphous phosphate, very occasionally a red blood cell per high power field and 30 to 40 white blood cells per high power field. X-rays of the spine showed arthritic changes of the cervical, thoracic and lumbar spines. There was considerable lordosis present. The lumbar vertebrae showed a bone graft on the left extending from the first to the fourth lumbar vertebrae.

Treatment.—The patient was seen daily for three days and a placebo was given hypodermically. Since he had allotted himself only ten days in the city, it was decided to forego the use of atropine alone and initiate treatment with physostigmine and atropine. Up to this period there had been no improvement. The patient was given 0.4 mg. of atropine sulfate and 0.6 mg. of physostigmine salicylate hypodermically. The following day he reported that all day long he had felt "freer" and had much less stiffness. His height now measured 5 feet 6½ inches (168 cm.). The same treatment was accorded the patient daily. At the end of another week he was able to sleep without medication other than the aforementioned and he was free from pain. His height now measured 5 feet 8 inches (172.7 cm.). Motion in the neck was increased to about 50 per cent of normal for side and side motion. Extension was much improved, and the patient now possessed the ability to flex the head somewhat. He was instructed as to the procedure and told to get an injection daily for one month.

At the end of one month the condition was the same. He was free from pain, slept well and was able to conduct his business as he had not been able to do in years. The height remained at 5 feet 8 inches.

Two and one-half months after the beginning of treatment the patient reported that he felt fine. He was free from pain. His height was the same. He received treatment as described every other day.

Case 3.—*Sacroiliac arthritis with sciatica of twelve years' duration.* E. A., a white woman aged 66, seen July 26, 1944, complained of pain in the back of the left leg radiating down to the calf. The present illness dated back almost twelve years. The condition came on gradually and had been becoming worse until when she was seen the discomfort was intense. The patient had had a breast amputation three years before. She had diabetes controlled by insulin. Her blood pressure was 160/100 mm. She was arteriosclerotic with avitaminosis. Her pain was affected by the changes in the weather.

Examination of the left leg revealed a shortening of the head of the gastrocnemius muscle. There was considerable difficulty in flexion of the leg, and descending the stairs caused much discomfort.

She was given physostigmine salicylate 0.6 mg. with atropine sulfate 0.4 mg. by hypodermic injection. Fifteen minutes later she was able to raise the right knee without discomfort.

Subsequent treatment consisted of semiweekly to weekly injections for a period of about four months. The patient had much relief at night, was able to raise the right leg without pain and could cross her knees and descend stairs easier and without discomfort. There was no difficulty in sleeping.

For the next six months she received injections every two to three weeks or whenever muscle spasm recurred. At no time have her symptoms recurred to the pretreatment state.

Other than a slight facial flushing after the first injection, no drug reactions occurred.

Case 4.—*Rheumatoid arthritis of three years' duration.*—S. D., a man aged 71, had involvement of the shoulders, elbow, hands, right rip and both sacroiliac joints. With the right hand he was able to reach the right eye with difficulty and pain. With the left hand he was able to reach the left ear with difficulty and pain. There was a contracture of the right elbow of 130 degrees and of the left elbow of 120 degrees. There was practically no motion of the right hip.

After one week of daily injections of isotonic solution of sodium chloride and one with atropine sulfate 0.6 mg. there was no improvement. Ten minutes after the hypodermic injection of 1.2 mg. of physostigmine salicylate and 0.6 mg. of atropine sulfate the patient was able to reach the top of his head with the right hand and about 2 inches above the top of his head with the left. He noticed "considerable loosening up" and insisted that this was the first time anything had been given him that didn't put him to sleep and yet gave so much relief from pain.

Treatment was suggested as described to be administered daily for two weeks and then two times weekly. To date, July 10, 1945, the patient has retained the improvement and contractures are gradually becoming less. He has been more comfortable and is able to get around with greater ease.

Case 5.—*Osteoarthritis of hip of fifteen months' duration.* I. M., a white woman aged 53, seen July 28, 1944, complained of pain in the right knee. At the age of 9 she fell, twisting the right hip. Weights were used for treatment. She had been perfectly well until Jan. 1, 1944, when she began to have pain in the right hip following the use of a knee press. The pain was quite severe and radiated down the leg.

The patient, who weighed 193 pounds (87.5 Kg.) and was 5 feet 9 inches (175 cm.) tall, showed limitation of motion in the right hip. Manipulation produced severe pain. The muscles surrounding the hip joint were in evident spasm. Voluntary hip flexion was limited to 200 degrees (180 plus 20). X-ray examination at this time revealed that the hip was gone and no socket was present. The hip joint was obliterated: osteoarthritis (fig. 1).

The blood count revealed hemoglobin 72 per cent, red blood cells 3,680,000, white blood cells 9,250. The patient had been on a weight reducing diet.

Further treatment consisted of physostigmine salicylate 0.6 mg. and atropine sulfate 0.6 mg. hypodermically twice weekly for fourteen weeks and then weekly for nineteen weeks. Following this the patient had considerable relief from pain and the muscle spasm was diminished. Voluntary motion now reached 230 degrees (180 plus 50). Subsequent observations revealed subjectively "that something felt as if it had gone back into place in the hip joint."

Injections twice weekly were sufficient to keep the patient relieved of pain and permitted her to do her own housework without too much difficulty. In all, there was reduction in weight from 193 pounds (87.5 Kg.) to 164 pounds (74.4 Kg.), a weight loss of 29 pounds (13 Kg.) in ten months. At the present time treatments consist of physostigmine-atropine injections weekly and a weight reducing diet.

This case is most unusual in that the pain in the hip was so severe and the limitation of motion was so annoying that several competent orthopedists had advised fusion for relief of symptoms. The x-ray revealed complete obliteration of the joint space. Relief from pain, increased muscle power and range of motion were accomplished, we believe, by the relief of muscle spasm with physostigmine. Surgery was no longer considered. One can argue that relief in this case might have resulted from weight reduction. However this may be, easing of pain and increase in motion were so sudden that one could not help but feel that it was the result of the drug. Furthermore, pain and spasm would return when there was interruption in treatment.

Case 6—*Calcified bursitis of three months' duration.* G. F., a man aged 61, complained of pain in the left shoulder with painful limitation of motion He had been treated previously with heat in various forms plus the use of histamine ointment. Physical examination was negative except for painful limitation of motion in the left upper extremity.

X-ray examination revealed a very large calcified bursa in the region of the head of the left humerus. The bone structure of this shoulder girdle was normal. There was no arthritis present. Subsequent x-rays (two months later) disclosed no significant changes in the amount of calcification present (fig. 2).

Therapy consisted of physostigmine salicylate and atropine sulfate 0 6 mg. hypodermically. Relief from pain was evident within one hour. In addition there was increased strength in the arm so that the patient could lift and hold objects. He was unable to do this before therapy was instituted Further treatment consisted of injections daily for three days, then three times a week for four weeks. There was continued improvement, as shown by the objective measurements and strength tests (table 4).

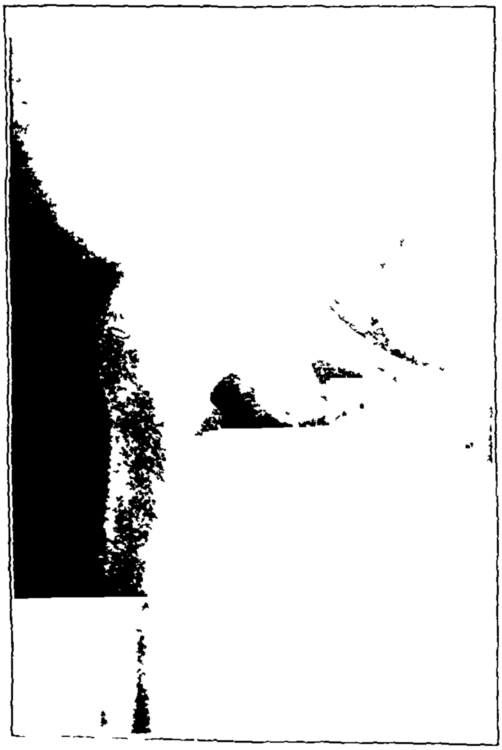

Fig. 1.—Osteoarthritis of right hip in case 5

This case serves to illustrate that calcification of the bursae may not always be entirely responsible for painful limitation of motion and disability.

Case 7.—*Bursitis of one year's duration.* G. K., a white man aged 50, seen May 24, 1945, complained of a painful immobile right shoulder. He had had similar attacks in 1940, 1942, 1943 and 1944 The diagnosis of calcified bursitis was confirmed by x-ray. All attacks were relieved in a reasonable period (ten days to two weeks) by x-ray therapy. The condition for which he was seeking treatment came on three months before, with pain and fixation of the shoulder girdle The patient could not place his right hand in his pocket. All movements caused severe pain X-ray examination revealed no evidence of old or recent injury or pathologic process to the bones of the right shoulder joint. The calcification previously described in the soft tissues of the right shoulder on April 16, 1943 had entirely disappeared, so that at the present time the entire shoulder appeared normal from the x-ray point of view. A point of tenderness could not be localized. It was now felt that the fixation was probably due to muscle spasm rather than to recurrent bursitis.

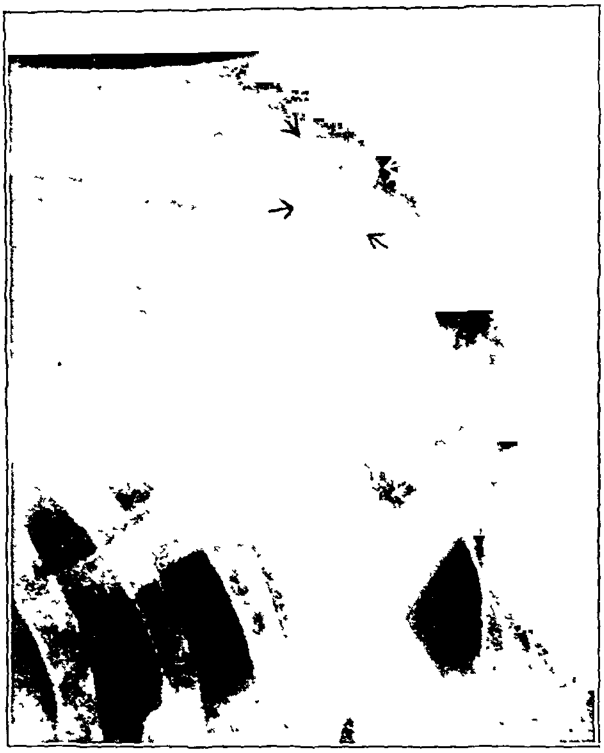

Fig 2.—Calcified bursitis in case 6

Table 4—*Measurements in Case 6*

Left Upper Extremity	Before Treatment	After
Forward flexion, straight arm	115°	160°
Abduction, straight arm ..	85°	110°
Backward flexion, straight arm	25°	45°
Left hand fingers touch.....	1. Occiput	Right ear
	2 Past midline of spine sacrum	All way around to right hip
	3 Barely touches right shoulder	Top of shoulder touched

Treatment consisted of physostigmine salicylate 0.6 mg. with 0 6 mg. of atropine sulfate subcutaneously. The patient immediately began to improve. With each injection there was continued improvement. He received treatment twice weekly for two months. He also received short wave diathermy and active exercise during this period.

CASE 8.—*Scalenus anticus syndrome of seven months' duration.* R. S., a white woman aged 43, seen Oct. 16, 1943, complained of pain in the neck and right shoulder radiating to the right elbow and wrist, and of numbness in the fingers of the right hand. The onset of this illness dated back about seven months. It came on with severe pain in the region of the neck and right shoulder, radiating to the right elbow and wrist. This was accompanied by numbness in the fingers of the right hand. On four occasions attempts were made to relieve the discomfort by infiltrations of procaine hydrochloride into the scalenus anticus muscle. The diagnosis of scalenus anticus syndrome was made by a competent surgeon. Operation of section of the muscle was advised. It was thought that the symptoms were due to spasm of the scalenus anticus muscle and that if the spasm could be relieved the symptoms might subside, thus obviating surgery.

Neostigmine methylsulfate 1 cc. 1:2,000 with 0.6 mg. of atropine sulfate was given intramuscularly on two successive days. For the next eight days treatment was repeated every other day. This was followed by a two weeks interval without treatment. Similar injections were then administered monthly. Reactions consisted of dizziness, abdominal pain with a desire to defecate, quivering of the facial muscles and restlessness. Subsequent adjunctive therapy consisted in the use of baking with the carbon filament bulb and deep massage.

Following the first injection pain was partially relieved, range of motion and power were increased, and numbness disappeared.

The patient has gradually made a complete recovery, no further therapy being required since March 1944.

It was not convenient to hospitalize all our cases in order that we might treat them as controls, and therefore in our statistical report we are reporting no controls. All cases herein described in detail were studied as controls, however, and a sufficient number used to form a feasible conclusion.

The cases classified as fibrositis consist of those in which pain in various joints was complained of, sometimes with contractures of the elbows but always a considerable amount of stiffness. There is a history of aches and pains over a period of years without much deformity and with a normal sedimentation rate usually.

All cases of rheumatoid arthritis were of more than six months' duration and all presented a rapid sedimentation rate.

SUMMARY AND CONCLUSIONS

1. Physostigmine salicylate has been used successfully in the relief of muscle spasm and associated conditions such as fibrositis and bursitis. It is an inexpensive form of therapy, replacing the more expensive neostigmine methylsulfate. Physostigmine appears to give local pain reactions less frequently than neostigmine.
2. Physostigmine, like neostigmine, causes relaxation of muscle spasm even though it has persisted for many years. As a result, active as well as passive motion in the affected joints is more easily carried out with less pain.
3. The effect of physostigmine given subcutaneously is rapid (within three to fifteen minutes after administration) and may persist for several days.
4. Further studies with neostigmine bromide orally do not warrant its continued use in the treatment of muscle spasm in rheumatoid arthritis and its allied conditions.
5. Physostigmine did not produce any severe toxic reactions.
6. The studies reported indicate that physostigmine is no more toxic than was neostigmine methylsulfate when used in comparable doses.
7. Physostigmine is used in the treatment of muscle spasm in rheumatoid arthritis and allied conditions for the purpose of relieving pain due to spasm and for preventing deformities.

TRAUMATIC RUPTURE OF THE SPLEEN IN CHILDHOOD

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Rupture of the spleen is probably the most common serious subparietal injury to the abdominal viscera in any age group. Its early recognition and treatment in childhood is of especial interest to those who deal with the problems of early life. Seven children with traumatic rupture of the spleen have been observed by the Surgical Service of the Children's Hospital during the period of 1937-1944 inclusive. It is our purpose in this report to record our experience with these patients and to discuss some aspects of this injury in children.

Anderson[1] in 1939 reported 10 cases of ruptured spleen in children observed in a fifteen year period and reviewed the literature on 80 previously recorded childhood cases. The ages ranged from 4 to 15 years in her series and the sex distribution showed a male predominance of 3 to 1.

All our patients were boys ranging in age from 4 to 13 years. This is in keeping with the greater activity of males and their larger exposure to trauma.

ETIOLOGIC ASPECTS

Trauma to the abdomen resulting in rupture of the spleen is usually of a violent nature. Although open or penetrating wounds may readily produce splenic damage, in civilian practice rupture of the spleen is commonly a subparietal injury, frequently without evidence of external trauma. In Anderson's series of cases the injury was sustained most frequently in an automobile accident. Falls, kicks, blows, sledding accidents and indeed any heavy force applied directly to the splenic region may produce the injury. Rarely, indirect violence as in a fall on the left hip or the right side of the abdomen has occasioned splenic rupture.[2] Three of our 7 patients were injured in falls and 3 in sledding accidents; 1 was struck by a falling object. All sustained closed injuries, and only 1 showed any superficial evidence of trauma.

The mechanism by which trauma to the abdomen or lower thorax results in rupture of the normal spleen is not clearly understood, since the spleen is well protected by the costal cage and has a mobile attachment. A sudden increase in intra-abdominal pressure occasioned by blast injuries has been known to cause splenic rupture.[3] In adults the injury frequently is associated with fractured ribs, variously reported by different authors as from 10 to 20 per cent.[4] This combination of injuries is rare in childhood. Mazel[5] has suggested that in children the flexibility of the lower costal cage allows transmission of a blow directly to the spleen, resulting in rupture without associated rib fracture. There were no fractured ribs in our group of splenic injuries.

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PATHOLOGY

Harkins and Zabinski[6] in 1943 classified rupture of the spleen under six headings which included spontaneous, traumatic and delayed rupture of the normal and diseased spleen.

While spontaneous rupture of the normal spleen is a questionable entity and warrants little consideration, spontaneous rupture of the diseased organ is apparently not uncommon. In childhood, however, the most important of the splenic injuries is traumatic rupture of the normal spleen.

The pathologic lesions encountered in subparietal rupture of the normal spleen have been arranged by Roettig, Nusbaum and Curtis[7] into five groups: (1) fragmentation of the spleen into two or more parts or complete detachment from the pedicle, (2) large laceration near the hilus, (3) a single large or many small tears of the periphery, (4) solitary small laceration of the periphery and (5) subcapsular hematoma.

In the 7 children with ruptured spleens observed at the Children's Hospital, the lesion could be classified as group 1 in 2 instances, group 2 in 4 and group 4 in 1 case. None of the spleens showed any pathologic changes other than those of trauma. It is interesting that 1 of the children had been successfully treated in the Infants' Hospital for erythroblastosis fetalis five years before his splenic injury. Although his spleen was enlarged in early infancy, it was not palpable after the age of 6 months. After the removal of this spleen for traumatic rupture the specimen was found to weigh 64 Gm. and microscopic study revealed no abnormalities other than those produced by trauma.

TABLE 1.—*Data from Seven Patients with Traumatic Rupture of the Spleen Treated at the Children's Hospital, Boston, 1937-1944*

Patient	Age	Sex	Injury	Symptoms	Clinical Examination	Interval from Injury to Operation	Operation	Result
1	5 yr.	♂	Fall	Diffuse abdominal pain; weakness; thirst	Pallor; tenderness R. U. Q.; B. P. 105/40; pulse 120; R. B. C. 3.5 million	9 hours	Splenectomy	Recovered
2	7 yr.	♂	Blow	Paroxysmal abdominal pain; vomiting; weakness; thirst	Pallor; tenderness L. L. Q.; B. P. 90/60; pulse 120; R. B. C. 4.85 million	8 hours	Splenectomy	Recovered
3	8½ yr.	♂	Fall	L. U. Q. pain; vomiting; left shoulder pain; weakness; thirst	Pallor; sweating; tenderness and spasm L. U. Q.; B. P. 105/72; pulse 96; R. B. C. 4.5 million	17 hours	Splenectomy	Recovered
4	13½ yr.	♂	Sledding accident	Diffuse abdominal pain; vomiting; left shoulder pain	Shock; tenderness and spasm max. L. U. Q.; dulness in flanks; B. P. 85/50, 65/50; pulse 120; R. B. C. 3.29 million	4 hours	Splenectomy	Recovered
5	10½ yr.	♂	Sledding accident	Diffuse abdominal pain; left shoulder pain; thirst; syncope	Pallor; cold extremities; tenderness and spasm L. U. Q.; shifting dulness; B. P. 104/72; pulse 124; R. B. C. 2.4 million	12 hours	Splenectomy	Recovered
6	5½ yr.	♂	Fall	Diffuse abdominal pain; vomiting; weakness; thirst	Pallor; diffuse abdominal tenderness and spasm; fluid wave; B. P. 98/50; pulse 104; R. B. C. 3.20 million	11 hours	Splenectomy	Recovered
7	4 yr.	♂	Sledding accident	L. U. Q. pain; vomiting; weakness; thirst; syncope	Pallor; tenderness and spasm L. U. Q.; fluid wave; B. P. 130/92; pulse 140; R. B. C. 3.5-2.6 (2 hrs.) million	30 hours	Splenectomy	Recovered

Delayed splenic rupture is encountered in about 14 per cent of all cases of ruptured spleen according to Harkins and Zabinski.[6] This syndrome is characterized by a "silent period" of at least twenty-four to forty-eight hours after the injury, followed by the sudden development of signs of acute blood loss. The pathologic lesion responsible for secondary hemorrhage usually is either a small peripheral laceration or a subcapsular hematoma. In the former, hemorrhage is delayed by a clot or by omental tamponade, while in the latter an expanding hematoma causes necrosis of the splenic capsule and subsequent bleeding.

Delayed rupture of the spleen was not encountered in our group of children, although 1 patient was not hospitalized until twenty-seven hours after his injury. During this period, however, there were symptoms of progressive blood loss.

CLINICAL ASPECTS

A child who has sustained an abdominal injury causing rupture of the spleen usually complains of abdominal pain, frequently in the left upper quadrant and occasionally referred to the left shoulder. The pain is shortly followed by evidences of acute blood loss. On examination there are pallor, anxious facies, varying degrees of shock, tenderness and spasm maximal in the left upper abdominal quadrant and with progressive and extensive bleeding, signs of abdominal fluid. Data from our 7 patients are summarized in table 1.

The abdominal pain of ruptured spleen in the Children's Hospital cases was of a diffuse, poorly localized nature more often than it was limited to the left upper abdominal quadrant. One child had paroxysmal pain resembling that of intussusception. The pain was referred to the left shoulder in 3 of these 7 children. This phenomenon, known as "Kehr's sign," results from diaphragmatic irritation and occurs in about 50 per cent of children with splenic injuries.[1]

The symptoms of acute blood loss were quite striking in every instance. All of the children complained of weakness and thirst, and 2 of them had fainted prior to admission to the hospital. Nausea and vomiting, probably related either to the shock of the initial trauma or to adynamic ileus associated with hemoperitoneum, occurred in 6 of the 7 patients.

Signs of acute blood loss were evident in every child on examination, although only 1 was in severe shock at entry with pallor, a pulse rate of 120 per minute, blood pressure 65/50, air hunger, sweating and cold extremities. All of the children were pale, and with a single exception the pulse rates were over 100. One child whose pulse rate was 140 had a blood pressure of 130/92, probably demonstrating the overcompensation of a labile vasoconstrictor system in the face of hemorrhage, as discussed by Harkins.[6]

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[6] Harkins, H. N., and Zabinski, E. J.: Traumatic Rupture of the Spleen, Am. J. Surg. **61:** 67-77, 1943.

[7] Roettig, L. C.; Nusbaum, W. D., and Curtis, G. M.: Traumatic Rupture of the Spleen, Am. J. Surg. **59:** 292-319, 1943.

Abdominal tenderness and muscle spasm were present in the left upper quadrant in 5 of these children. In 1 these signs were maximal in the right upper quadrant, and another had generalized abdominal tenderness and spasm. Pressure of the examiner's hand over the left upper quadrant in 1 patient produced left shoulder pain in a rather striking manner.

Signs of abdominal fluid as evidence of hemoperitoneum were elicited in 4 patients. In no instance was "Ballance's sign" encountered. This is described as increasing and nonshifting dulness in the left flank associated with signs of free fluid in the remainder of the abdomen. There were no palpable masses in the splenic region or elsewhere in any of our patients.

The erythrocyte count had fallen to 3,500,000 or less by the time of admission in 5 of these 7 patients, in 2 instances dropping as low as 2,600,000 and 2,400,000 before operation. Theoretically, blood loss from ruptured spleen causes an earlier and more profound reduction in blood volume than bleeding of equal degree from another source, since with splenic rupture the reservoir or "emergency" function of the spleen is not available as a compensatory mechanism in hemorrhage. Contrary to this hypothesis, 1 child had a red blood count of 4,500,000 on entry, falling to 4,070,000 within a two hour period. At operation he proved to have a small laceration of the splenic periphery of the group 4 variety. Another patient's admission erythrocyte count recorded five hours after injury was 4,850,000 despite a freely bleeding laceration near the splenic hilus.

TABLE 2—*Surgical Mortality in Subcutaneous Rupture of the Spleen*

(From Harkins and Zabinski, with additions)

Author	Year	No of Cases	Mortality, per Cent
Bessel Hagen	1900	37	46
Michelsson	1913	298	33
Buxton .	1922		29
McIndoe ..	1932	37	27
Anderson .	1939	9	33
Foster.	1940	20	30
Rousselot and Illyne	1941	17	29
Harkins and Zabinski.	1943	10	30
Roettig, Nusbaum and Curtis	1943	15	7
Scott and Bowman . .	1945	7	0

The leukocyte counts varied between 10,600 and 18,000 in this group of children on entry. Leukocytosis apparently is a physiologic response to trauma and hemorrhage and is not indicative of infection in such cases.

Roentgen examination of the lower thorax and abdomen was made in 6 of the 7 patients immediately after hospitalization. There were no evidences of fractured ribs or of ruptured hollow viscera. In our experience roentgenograms of the abdomen have not contributed to the positive diagnosis of splenic rupture. However, Solis-Cohen and Levine [8] as well as O'Neill and Rousseau [9] have described roentgen changes which they consider practically pathognomonic of rupture of the spleen. These changes include a dilated stomach with a serrated greater curvature and obliteration of the splenic shadow. Whether or not roentgenography is of aid in the diagnosis of ruptured spleen, roentgenograms of the thorax and abdomen are indicated in order to exclude associated injuries. The differential diagnosis includes contusion of the abdominal wall, fractured ribs, ruptured hollow viscus, ruptured kidney and lacerated liver. Any of these injuries may occur in conjunction with a ruptured spleen.

In general, a history of trauma to the abdomen, followed by symptoms and signs of blood loss with abdominal tenderness and spasm maximal in the left upper quadrant and a reduced or falling red blood count, are diagnostic of intra-abdominal hemorrhage and strongly suggestive of rupture of the spleen.

TREATMENT

As soon as a presumptive diagnosis of rupture of the spleen has been made, preparation for immediate splenectomy is indicated. Prolonged observation may allow the patient to become exsanguinated. A plasma infusion should be started while compatible blood is being obtained. The importance of having large amounts of whole blood available for continuous transfusion before, during and after operation cannot be overemphasized In our experience the amount of blood present in the peritoneal cavity at the time of operation has averaged between 500 and 1,000 cc. Sudden release of tamponade on opening the peritoneum may result in acceleration of the bleeding, further hampering the operative procedure and adding considerably to the total blood loss

The technic of splenectomy for ruptured spleen in children differs from the elective operation only in that immediate control of the pedicle is the first objective While a transverse or subcostal approach gives the best exposure of the splenic region, we usually have employed a long, left paramedian incision when traumatic rupture is suspected. Rapid laparotomy is facilitated by this incision, and thorough abdominal exploration can be carried out without extending the wound. After the removal of the spleen all blood is aspirated from the peritoneal cavity, and the abdominal contents are carefully examined for associated injuries. Drainage is not indicated.

During the postoperative period an elevation in blood platelets occurs with the accompanying danger of vascular thrombosis. Platelet counts should be performed daily after the third or fourth postoperative day in anticipation of a "platelet crisis." The maximum elevation in thrombocytes is attained usually at the end of the first or during the second week after splenectomy.[10] It is the policy of this service to begin heparinization for any evidence of thrombosis and prophylactically for an elevation in platelets above 800,000 per cubic millimeter. Heparin is continued until symptoms have abated or until the platelet count has fallen below 800,000. Only 1 of our 7 patients developed symptoms suggestive of vascular thrombosis. These consisted of abdominal discomfort and vomiting associated with a platelet count of 900,000, occurring on the eighth postoperative day. Heparinization resulted in prompt relief of symptoms, but, because of persistent thrombocytosis, roentgen therapy to the thorax was given. Thereafter the platelet count subsided and the patient recovered uneventfully.

Davis and Sharpe [11] in 1938 discussed splenic vein thrombosis following splenectomy and concluded that this uncommon complication was most apt to result from the disease process necessitating splenectomy rather than from the operation itself. Recently, however, Gius, McGovern and McMurray [12] reported a case of splenic and portal-vein thrombosis which apparently followed splenectomy for traumatic rupture. This complication was not encountered in any of our patients.

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[9] O'Neill, J. F, and Rousseau, J P.: Roentgenologic Examination of the Abdomen as an Aid in the Early Diagnosis of Splenic Injury, Ann Surg 121:111-119, 1945

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[11] Davis, H H, and Sharpe, J. C: Splenic Vein Thrombosis Fol[illegible] Surg Gynec & Obst 67:678 682, 1938

[12] [illegible] J. D, and McMurray, W. R: Portal Vein T[illegible] al of Ruptured Spleen, Ann Surg 121: [illegible]

One interesting sequela to splenectomy for traumatic rupture of the spleen is the condition known as "splenosis" or autoplastic transplantation of splenic tissue to the peritoneal surfaces. This condition is said to occur more commonly in young persons.[13] We have had no opportunity to observe this phenomenon in our patients.

COMMENT

The 7 patients with traumatic rupture of the spleen observed at the Children's Hospital from 1937 to 1944 were treated by splenectomy and all recovered. The general mortality resulting from this injury in all age groups as indicated by the literature has averaged about 30 per cent. In recent years the mortality rate has declined (table 2). This may be attributed to earlier recognition with prompt surgical intervention and to the greater availability of blood and blood substitutes and their use in replacing the blood loss.

Six of our 7 patients were operated on within three hours after entry, while 1 was observed for sixteen hours before splenectomy was performed.

To postpone operation after a presumptive diagnosis of splenic injury has been made is often disastrous. Because of the great danger of delayed splenic rupture, even a seemingly trivial laceration of the spleen should be treated by splenectomy rather than by attempted suture of the defect.

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COLLOIDAL SALT NASAL TAMPONADES: THEIR USE AND ABUSE

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There is probably no other type of nasal therapeusis so empirical and yet so widely used as that of nasal tamponades saturated with a solution of mild protein silver. Both rhinologists and general practitioners have employed it for years in a wide range of nasal disorders. Some of their advocates have made bizarre claims that these nasal packs, introduced under certain specifications, will relieve or even cure any and all nasal disturbances from nasal "catarrh" to empyema of the antrum; they even go so far as to believe that such therapy will cure asthma and even some ocular afflictions. Yet the merits of these tamponades have never been scientifically proved; indeed, the fact remains that many observers have accumulated considerable evidence to the contrary.

All along there has been a great lack of unanimity of opinion among authorities on this confused question, some notable workers standing stanchly by the use of the treatment, while others, equally reliable in their field, have considered it ineffective and even harmful.

Dowling[1] in 1910 advocated the beneficial use of nasal tamponades and subsequently published many papers in support of his observations. Since then many authors have substantiated his claims. Thus the treatment gained considerable acceptance.

Voorhees[2] in 1934 endeavored to estimate the popularity of the method and sent out a questionnaire to 7,300 eye, ear, nose and throat specialists to ascertain how many of them used silver colloidal preparations in their practice. He received 2,948 responses, of which 88 per cent declared that they used silver salts in one form or another. The replies were not sufficiently detailed to make it possible to judge whether these salts were used in the form of drops or of nasal tampons, but it seems fairly clear that many of the specialists used it in the form of tamponades.

Although it is common knowledge that general practitioners and rhinologists frequently employ this form of treatment in cases of acute and chronic sinusitis, a careful search of the literature on this subject during the past twenty-five years shows that no comprehensive or critical review of the subject of nasal tampons with colloidal salts has been made.

The standard textbooks either ignore the subject or commit themselves merely to some such statement as "nasal tampons[3] . . . colloidal silver . . . are undoubtedly of value in some cases but are not the panacea they were formerly believed to be." "Tamponade[4] with a mildly stimulating solution is used by many men." "The common[5] 'silver pack' method, of doubtful value, is usually so distasteful to children as to render it unsuitable in this age group."

This does not mean, however, that the method is without its strong supporters. Such a well known authority as Dean[6] claims that . . . so far, argyrol has given the best results in this class of cases, both clinically and also in experimental sinusitis in animals. Another supporter of the method is Boies,[7] who thinks that application of tampons soaked with 15 per cent mild protein silver in equal parts of glycerin and water, applied to the middle meatus or above the middle turbinate, or both, seems to be effective in the subacute cases of sinusitis.

Among the supporters also are found Williams and Mousel,[8] who in discussing the treatment of allergic patients claim that two to four tablets of histaminase taken before each meal will often cause a remarkable disappearance of polyps with reduction of edema and that such simple measures as shrinkage with the "Dowling pack" followed by gentle suction will effect a cure of secondary infection of the sinuses.

Gable,[9] also on the side of the pros, finds that a treatment most satisfactory both to the patient and to the physician is the placing of tampons saturated with a colloidal silver solution in the region of the ethmoid cells, a procedure which by osmosis removes the excess fluid from the mucous membrane, thus effecting a definite shrinkage.

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[13] Buchbinder, J. H., and Lipkoff, C. G.: "Splenosis": Multiple Peritoneal Implants Following Abdominal Injuries, Surgery **6**: 927-934, 1939.

[1] Dowling, J. I.: Nasal Tamponades: An Original Method of Treating Ocular Disease, Homeop. Eye, Ear & Throat J. **16**: 259-268 (June) 1910; Nasal Tampon Treatment of Sinus Disease, Laryngoscope **35**: 453-468 (June) 1925; The Tampon Treatment of Ethmoiditis, J. Ophth., Otol. & Laryng. **31**: 53-60 (Feb.) 1927; Nonsurgical Treatment of Ethmoiditis, Laryngoscope **40**: 633-639 (Sept.) 1930; The Dowling Treatment—Thirty Years of Observation and Results, Eye, Ear, Nose & Throat Monthly **16**: 337-344 (Nov.) 1937.

[2] Voorhees, I. W.: Evolution of the Silver Salts in Eye, Ear, Nose and Throat Work, Eye, Ear, Nose & Throat Monthly **13**: 269-273 (Aug.) 1934.

[3] Lederer, F. L.: Diseases of the Ear, Nose and Throat, Philadelphia, F. A. Davis Company, 1938, p. 383.

[4] Imperatori, J. C., and Burman, J. H.: Diseases of the Nose and Throat, ed. 2, Philadelphia, J. B. Lippincott 1939, p. 44.

[5] Richards, L. G.: Otolaryngology in General Practice, New York, Macmillan Company, 1939, p. 232.

[6] Dean, L. W., in Brennemann, J.: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., 1937, vol. 2, chapter 41, p. 2.

[7] Boies, L. R., in discussion on Kully, B. M.: The Use and Abuse of Nasal Vosoconstrictor Medications, J. A. M. A. **127**: 307-310 (Feb. 10) 1945.

[8] Williams, H. L., and Mousel, L. H.: Diagnosis and Treatment of Chronic Disease of the Paranasal Sinuses, Ann. Otol., Rhin. & Laryng. **49**: 466-489 (June) 1940.

[9] Gable, N. W.: Ethmoiditis, J. Florida M. A. **26**: 498-500 (May) 1940.

Equally positive are those of the opposing camp. Nadler[10] finds no physiologic basis for the use of local applications, irrigations or tampons or for the use of antiseptics such as organic silver preparations, since these cannot be brought in contact with all of the organisms in the nose. He feels that the nasal mucosa must be responsible for its own defense. Bowers[11] feels that the results obtained from the silver "pack" are due to osmosis by drawing water out of the tissues and that hypertonic saline solutions can do this equally well. Furstenberg[12] has eliminated the "pack method" from his clinic, as he feels that irritating solutions are contraindicated because gauze or cotton tampons can do injury to the delicate membranes. Swain[13] agrees that injury may be done by knocking off ciliated epithelium with the cotton applicators; also that colloidal silver preparations excoriate the mucous membranes. Mithoefer[14] has no faith in this method, and Walsh and Cannon[15] and Proetz[16] find its antiseptic value very doubtful.

With such leading authorities lined up in one camp or another, the confusion to the average practitioner who wishes to discriminate becomes very apparent. An attempt will be made to clarify the issue.

HISTORY OF COLLOIDAL SILVER

The therapeutic effect of certain of the metallic elements, especially of mercury and silver, has been known since ancient times. Thus Izar[17] reports that as long ago as the Macedonian era wounds were covered with silver plates. In parts of Italy erysipelas was still treated this way in the early part of this century.

Cary Lea in 1891 obtained dispersions of silver in water, but these aqueous solutions were unstable as they had no protective colloid added.

Credé meanwhile became interested in the therapeutic potentialities of silver and experimented with the effects of silver nitrate as compared with silver lactate, citrate and other forms. He introduced colloidal silver in 1896, and this instituted the use of colloidal metals as therapeutic agents; at the present time silver is probably one of the most important of the metals employed for this purpose.

Credé made use of Cary Lea's dextrin solution. At the present time pharmaceutical houses have put a large number of commercial products on the market which carry names indicative of the method of preparation or of the protecting colloid which is added to ensure their stability. Some of the solutions most frequently encountered, together with the protective colloid each contains, are "Argentum Credé" or Collargol (dextrin), Argyrol (vitellin from egg yolk), Dispargin (acid degradation product of gluten), Lysargin (sodium lysalbinate), Protargol (sodium protalibinate), Sophol (nucleic acids and formaldehyde) and Electrargol, an electrically dispersed solution, protected by gelatin.

PHARMACOLOGY

The effectiveness of colloidal silver is due to the immediate irritant properties produced by the free silver ions and subsequent mild antiseptic effects produced by the resolution and ionization of the silver protein compounds that were formed in the first stage.

Careful laboratory tests[18] prove that mild protein silver salts U. S. P. cannot be relied on to destroy Staphylococcus aureus in the presence of the concentration of organic matter used in the experiments. However, they rated somewhat better against Eberthella typhosa. The strong protein silver U. S. P. was effective against both organisms but rated slightly lower than noncolloidal compounds.

According to Goodman and Gilman[19] the antiseptic activity of a given preparation is not in proportion to the total content of silver but is due rather to the function of free silver ions. They further state that the indiscriminate use of colloidal silver solutions, especially in prophylactic treatment of upper respiratory infections, is probably doing more harm than good . . .; it is quite possible that they may injure tissue cells. Nor do Goodman and Gilman find any evidence that the routine use of silver solutions for prophylaxis of colds is at all efficacious.

The strong protein silver group, according to New and Nonofficial Remedies, is most effective but is slightly irritant and stimulant. The mild protein silver group acts largely as a mucilaginous demulcent, and its action is protective and detergent through the dislodging of pus.

EXPERIMENTAL STUDIES

Since it is a well known fact that nasal packs with colloidal silver bring about an increased flow of mucoid discharge, laboratory research on the influence of mucin in relation to the virulence of pathogenic germs is of great interest. The investigations of Nungester and his co-workers[20] produced unassailable proof that when bacteria are suspended in sterilized mucin and injected intraperitoneally, subcutaneously or into the lower air passages they become so injurious to the animal host that it frequently dies from a small sublethal dose; in other words, "the virulence of bacteria in the presence of mucin is greatly increased." The authors offer the following comments: "The mechanism of the action is not yet understood. Mucin does not interfere with phagocytosis but does inhibit the bactericidical properties of phagocytic cells. It enables bacteria to survive in the body of the host for longer periods without diminution in number, or it may allow the organisms to increase in number and so result in the death of the animal. The viscosity and cohesive properties of the mucin appear to be important indices to the effectiveness of mucin on bacterial infections."

Does it not seem logical to infer, therefore, that any agent which increases the flow of mucin of the nose is harmful rather than beneficial?

UNFAVORABLE EFFECTS

Bryant[21] emphasizes the danger of argyria resulting from the use of silver preparations for intranasal medication. He states that a review of the literature shows a decided increase in such cases in the last five years. He concludes that intranasal medication with silver preparations for even weeks is dangerous and "accomplishes nothing that cannot be accomplished safely and more efficiently by other means."

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[10] Nadler, W. H.: Treatment of the Common Cold, M. Clin. North America **25**: 195-204 (Jan.) 1941.

[11] Bowers, W. C.: Present Day Treatment of Infections of Middle Ear and Nasal Sinuses, Eye, Ear, Nose & Throat Monthly **22**: 293-300 (Aug.) 1943.

[12] Furstenberg, A. C.: The Treatment of Acute Nasal Accessory Sinus Disease, Tr. Am. Laryng. A. **60**: 240-254, 1938.

[13] Swain, H. L., in discussion on Furstenberg,[12] p. 251.

[14] Mithoefer, W.: Treatment Other Than Operative of Nasal Accessory Sinuses, Ann. Otol., Rhin. & Laryng. **45**: 420-429 (June) 1936.

[15] Walsh, T. E., and Cannon, P. R.: Effects of Drugs on Ciliary Activity of Mucosa of the Upper Respiratory Tract, Arch. Otolaryng. **19**: 55-65 (Jan.) 1934.

[16] Proetz, A. W.: Effects of Certain Drugs on Living Ciliated Epithelium, Ann. Otol., Rhin & Laryng. **43**: 450-453 (June) 1934.

[17] Cited by Weiser, H. B.: Inorganic Colloid Chemistry, New York, John Wiley & Sons, Inc., 1933, pp. 132-135.

[18] Sellmann, Torald: Manual of Pharmacology, ed. 6, Philadelphia, W. B. Saunders Company, 1942.

[19] Goodman, L. S., and Gilman, A.: Pharmaceutical Basis of Therapeutics, New York, Macmillan Company, 1941, pp. 860-861.

[20] Nungester, W. J.; Jourdonais, L. F., and Wolf, A. A.: The Effect of Mucin on Infection by Bacteria, J. Infect. Dis. **59**: 11-21 (July-Aug.) 1936. Wheeler, A. H., and Nungester, W. J.: *Effect of Mucin on Influenza Virus Infection in Hamsters*, Science **96**: 92-93 (July 24) 1942.

[21] Bryant, B. L.: Argyria Resulting from Intranasal Medication, Arch. Otolaryng. **31**: 127-139 (Jan.) 1940.

Criep[22] reported a case of allergy to argyrol (mild protein silver). There was evidence of sinus infection (with sneezing, nasal blockage, rhinorrhea and wheezing) developing during local application of the drug. After the throat had been sprayed with argyrol for treatment of pharyngitis, severe asthma developed. Scratch skin tests with 1 per cent argyrol were positive in the patient; passive transfer tests were carried out and specific antibodies against argyrol found. Intradermal tests with similar dilutions of U. S. P. mild protein silver (Solargentum and other brands) gave negative cutaneous reactions and negative passive transfer tests; local nasal tampons with these preparations caused no local symptoms of asthma. He questions whether allergic responses to argyrol are as rare as they are believed to be and suggests that symptoms may be so mild as to pass unrecognized by rhinologists.

PHYSIOLOGY OF THE NOSE

For a more intelligent approach to nasal therapy it is essential to consider that many nasal disturbances are physiologic in nature rather than pathologic, or a combination of the two.

Respiration, the most important nasal function, is intended to warm and humidify the inspired air on its way to the lungs. The structure of the nose also filters the air of dust particles and bacteria, the coarser particles being caught by the vibrissae of the nares, while finer particles are seized by the cilia and the mucous blanket. The mucous membrane of the nasal cavity and sinuses is lined with ciliated epithelium. The cilia are vigorous, resistant and powerful and possess a great regenerative faculty. The motion of the cilia is somewhat similar to grass or wheat being waved by the wind as it sweeps along the thin coat of the overlying mucus.

The film of mucous secretion extends over the nose, sinuses, trachea and esophagus into the stomach. The flow varies in rate and direction, that in the nose being directed toward the nasopharynx. Mucus is thin, elastic, slippery and tenacious, and it readily encloses and carries away foreign matter. Mucus movement is most active in the ciliated area in the posterior two thirds of the nose, where it is renewed about once every ten minutes. Bacteria are swept quickly away from the active areas, and the deeper portions of the nose are often found to be sterile. The natural defenses of the nose, therefore, are due to ciliary action and are not necessarily aided by nasal antiseptics. Probably there are also natural antibodies against bacterial agents.

INDICATIONS FOR AND AGAINST TAMPONAGE

From a scientific point of view, and according to the clinical evidence of some competent observers, one would infer that colloidal silver should have no place at all in nasal therapeusis. Yet it cannot be denied that nasal "packs," when used routinely, do give the patient temporary relief lasting from twenty-four to forty-eight hours. It is impossible to determine whether this relief is due to the osmotic, mildly astringent and antiseptic value of the drug. Some contend that the same results would be obtained with saline solution. It may also be that the suction of the superfluous nasal discharge which usually follows the tamponage effects a temporary palliation.

Aware of the contradictory opinions expressed in the literature as to the value of this medication, I have given this therapy a thorough and unbiased trial both in hospital and in private practice over a period of years, so as to form an opinion regarding this controversial topic. Careful notations have been made on the symptomatic relief following this treatment in a wide variety of types of nasal disorders.

I have concluded that colloidal silver tamponage is at best of dubious curative value in definitely purulent sinusitis or where there is physical obstruction in the structure of the nasal vestibule such as a considerably deflected septum, hypertrophied turbinates or polypi. In allergic patients this treatment often aggravates the symptoms.

On the other hand there is a class of patients, constituting a small percentage of those with nasal disorders, who complain of vague headaches, nasal stuffiness and discharge. This picture frequently occurs in stocky individuals of both sexes.. Inquiry reveals that they have a tendency to overeating and indiscreet indulgence in rich foods, and that their bowels are sluggish. In addition, there may be evidence of overactivity of the sebaceous glands in the face and scalp. X-ray examination of the paranasal sinuses is usually negative except for a mild thickening of the mucous membranes lining them, especially those of the ethmoids. Except for the absence of sneezing, the clinical picture revealed by nasal examination is very similar to that seen in allergic patients: the nasal mucous membrane is congested and thickened, the inferior turbinates are boggy and the nares are filled with thick mucus.

Before submitting these patients to allergic tests or search for eosinophils, I have found it practicable to insert gently tampons medicated with 10 per cent colloidal silver solution. If this is followed by a very profuse mucoid discharge from the nose, saturating one or two towels, and if a yellow ropelike mucous discharge is sucked out of the nose, it is likely that the patients will experience long lasting relief after several such treatments. They usually volunteer the information that their heads feel clearer after such therapy. The most reasonable explanation of the favorable results obtained is that the symptoms are due to hyperactivity of the glands of the schneiderian membrane of the nose. In addition to receiving local treatment, these patients are advised to seek the aid of an internist for correction of their diets and mode of living. Small doses of thyroid are a good adjuvant.

It is immaterial whether similar results can be obtained with medication other than the silver protein solution, since this drug is relatively harmless if judiciously used and not applied over too long periods of time. In all other types of nasal disorders tamponades, although innocuous, are entirely ineffective, except for a very brief respite of the patients' complaints.

COMMENT

Solutions of mild protein silver used in the form either of nasal drops or of tampons have enjoyed considerable popularity both with the profession and with the public.

Up to the present time we have no definite scientific proof or statistical data to support the curative claims or the great enthusiasm expressed by the proponents of this medicated tamponage. Though there is reasonably good evidence against the indiscriminate employment of tamponage, in some well selected instances this treatment produces very satisfactory results.

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[22] Criep, L. H.: Allergy to Argyrol, J. A. M. A. **121**: 421-422 (Feb. 6) 1943.

CONCLUSION

1. When used as a tampon in the nasal cavity, colloidal silver solution is limited in its local therapeutic effects.
2. There is no reason to believe that any particular technic employed in applying these tampons will produce superior results.
3. The best that can be claimed for it is that its action is due primarily to its free silver ions.
4. When the nose is packed tightly with tampons, some ciliary damage occurs.
5. There is no adequate excuse for having patients tamponaded over a period of months or years.
6. The mischief in the continued nasal packing lies not so much in the act of commission but rather in that of omission. In other words, the patient is receiving palliative care rather than a correct diagnosis, in a stage when chronicity could be avoided.
7. There is a particular type of so-called nasal "catarrh" in plethoric and obese persons which yields to such tamponage, the relief lasting at times for months without requiring interval treatment.
8. Allergy to protein silver, although rare, and possible argyria after prolonged use must be borne in mind.
9. Prolonged nasal tamponage as a routine method for the cure of chronic sinusitis has no physiologic or pharmacologic basis in the therapeutic armamentarium of either the rhinologist or the general practitioner.

1075 Park Avenue.

Clinical Notes, Suggestions and New Instruments

FRACTURE OF THE FIRST CERVICAL VERTEBRA, COMPLICATED BY CERVICAL RIB

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Fractures of the cervical vertebrae are not very unusual. Fractures of the first cervical vertebra are fairly rare. For this reason it would seem desirable to report a fracture of the atlas whenever encountered.

The present case illustrates a few unusual features. Plaut,[1] in a review of this injury in 1937, stated that the commonest cause for this type of fracture is a blow on the vertex of a patient looking forward, in an upright position. Under these circumstances the fracture is produced by a pressure on the vertex and counterpressure from the spine below; that is, pressure between the condyles of the occiput and the lateral masses of the axis. The weakest point of the atlas lies in the arches, both posterior and anterior, and fractures occur through these areas, with lateral displacement of the fragments. The patient who is the subject of the present report was standing in the hold of a vessel, looking forward, and was struck on the vertex with a sack of grain. It should be noted that the falling object was rather soft and consequently produced a pressure injury on the cervical vertebra rather than a direct fracture at the point of contact at the vertex. Hard objects striking the vertex are more likely to produce a depressed fracture of the skull at the vertex, or a basilar fracture. If the head is not fixed in a vertical position but is inclined somewhat forward, compression fractures of the cervical vertebrae, particularly the fifth and sixth, may be expected, instead of a fracture of the atlas. Fractures of the atlas are not uncommonly encountered in automobile accidents.[2] The mechanism here apparently is that the patient is thrown upward, usually from the rear seat, striking the vertex against the roof of the automobile. Here again a slower type of pressure is experienced

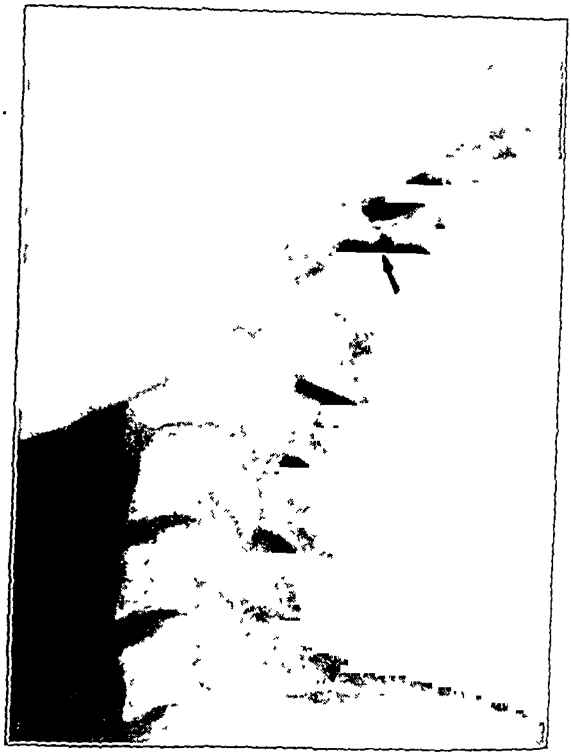

Fig 1.—Lateral view, showing fracture.

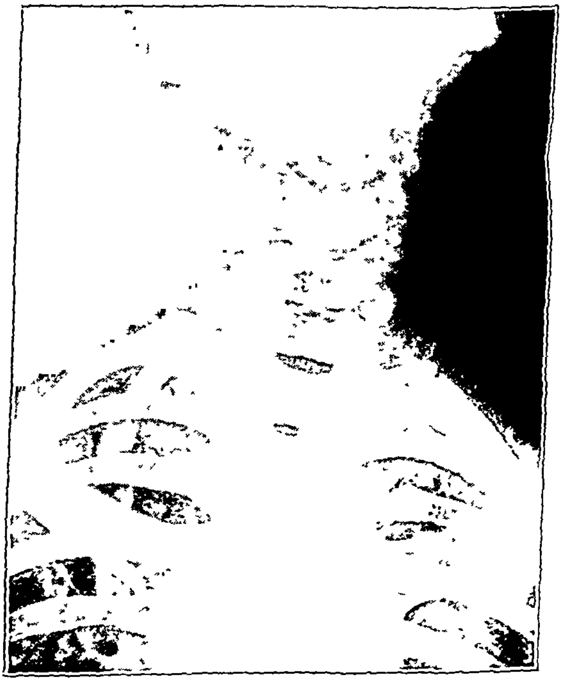

Fig 2.—Anteroposterior view, demonstrating the cervical rib

Dr. George McChesney cooperated with orthopedic consultation.

From the surgical services of Dr. Alanson Weeks and Dr G. D Delprat

[1] Plaut, H F: Fracture of the Atlas a Developmental Anomaly, Radiology 29: 227 231 (Aug) 1937.

[2] Plaut, H. F.: Fracture of the Atlas in Automobile Accidents, J. A. M. A 110: 1892 (June 4) 1938.

and the mechanism is quite similar to that of a semisolid blow on the vertex.

Sinberg and Burman[3] state that the fracture may b unilateral or bilateral and in the posterior arch where the lateral masses are narrowed by the groove of the vertebral artery. However, it is necessary to differentiate these fractures in the x-rays from congenital bony defects. Lack of fusion of the posterior arch may produce a bony defect which is usually near the posterior tubercle, with rarely more than a width of 10 mm. The characteristic fracture, of course, is recognized by the sharp edges of the fracture line and subsequent disappearance of this line and the development of callus.

REPORT OF CASE

B. R., a Negro aged 40, admitted to St. Luke's Hospital to the service of Drs. G. D. Delprat and Alanson Weeks on Dec. 15, 1944, had been struck on the head by a sack of grain weighing about 100 pounds about two hours prior to admission. At the time he was standing erect and facing straight forward. He believes he was unconscious for a few seconds and was then aware of lying on the ground and having severe "pain" in the base of the skull "and a pain in the right shoulder." On admission he had nuchal and right shoulder pain and tingling in the right upper arm. X-rays showed a fracture of the first cervical vertebra near the junction of its posterior and middle thirds, the fragments being in satisfactory position. Also there was a long rib attached to the right transverse process of the seventh cervical vertebra.

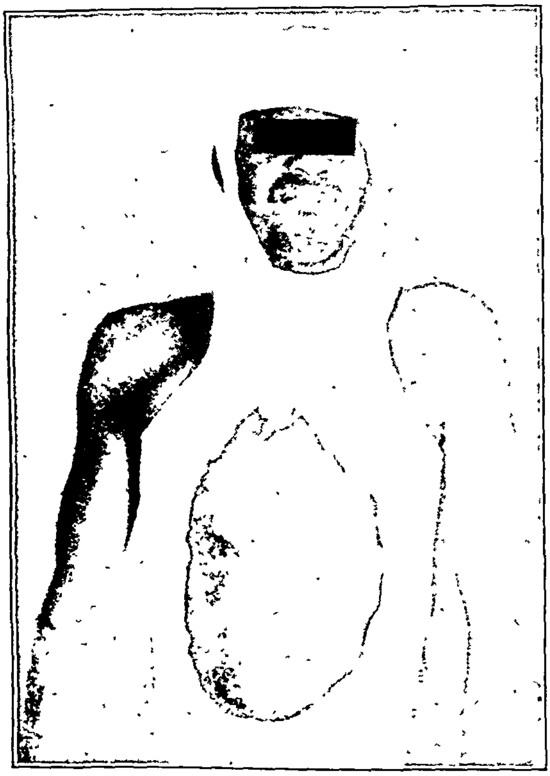

Fig. 3.—The cast.

Preliminary treatment consisted of head traction, with only slight relief, and hot compresses to his painful shoulder. On December 19 he was placed in a plaster jacket with a helmet included, this holding the head in slight extension and with great comfort to the patient. On December 28 he was allowed up in a chair and after a few days was able to walk. The patient was subsequently discharged ambulatory.

On Feb. 9, 1945 the cast was removed and x-ray examination at this time showed the fragments to be in good position with callus present. A plaster (Thomas) collar was then applied, this being split after eight weeks to allow physical therapy three times weekly, the collar being reapplied after each treatment. After a month the collar was removed permanently. X-ray examination on March 7 showed partial bony union with the fracture line still visible, and a film on May 4 showed almost complete bony union.

At present the patient still has physical therapy three times weekly for residual stiffness and slight pain in the neck. Rotation of the head is limited about 20 per cent. He has occasional ulnar paresthesia in the right hand apparently due to the presence of the aforementioned cervical rib.

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[3] Sinberg, S. E., and Burman, M. S.: Fracture of the Posterior Arch of the Atlas, J. A. M. A. **114**: 1996 (May 18) 1940.

Council on Foods and Nutrition

ACCEPTED FOODS

The following additional foods have been accepted as conforming to the Rules of the Council on Foods and Nutrition of the American Medical Association for admission to Accepted Foods.

George K. Anderson, M.D., *Secretary*.

PREPARATIONS USED IN THE FEEDING OF INFANTS (*See* Accepted Foods, 1939, p. 156)

Beech-Nut Packing Company, Canajoharie, N. Y.

Beech-Nut Strained Custard Pudding contains milk, sugar, rice, cornstarch, whole eggs, egg yolks, salt, vanilla and water.

Analysis (submitted by manufacturer).—Total solids 22.90%, moisture 77.10%, ash 0.88%, fat (ether extract) 2.05%, protein (N × 6.25) 2.38%, crude fiber 0.15%, carbohydrates (other than crude fiber) 17.44%, calcium 0.075%, phosphorus 0.060%, iron total 0.37 mg. per hundred grams, iron "available" (Bipyridyl method) 0.17 mg. per hundred grams, copper 0.15 mg. per hundred grams, specific gravity 1.08.

Calories.—98 per hundred grams, 28 per ounce.

Vitamins.—	Per Hundred Grams
Vitamin A, total	207 U. S. P. units
Thiamine	0.012 mg.
Ascorbic acid	0.018 mg.
Riboflavin	0.154 mg.
Niacin	0.18 mg.

Heinz Company, Pittsburgh.

Heinz Strained Custard Pudding contains rice, sugar, salt, 50 per cent cream, whole milk powder, whole eggs, cornstarch, vanilla concentrate and water.

Analysis (submitted by manufacturer).—Total solids 23.57%, total sugar as sucrose 10.81%, acidity as lactic 0.07%, protein (N × 6.25) 2.98%, fat (by acid hydrolysis) 2.34%, ash 0.75%, salt 0.43%, total carbohydrates by difference 17.43%, calcium 81.0 mg. per hundred grams, phosphorus 61.0 mg. per hundred grams, iron 0.04 mg. per hundred grams, copper 0.05 mg. per hundred grams.

Calories.—1.03 per gram, 29 per ounce.

Vitamins.—	I. U./100 Gm.	Mg./100 Gm.
Carotene	54	.....
Thiamine	..	0.016
Riboflavin	..	0.101
Ascorbic acid	..	3.43

H. J. Heinz Company, Pittsburgh.

Heinz Strained Peaches contains peaches and sugar.

Analysis (submitted by manufacturer).—Total solids 22.32%, total sugar as sucrose 19.98%, acidity as citric 0.44%, protein (N × 6.25) 0.38%, fat (by acid hydrolysis) 0.22%, crude fiber 0.53%, ash 0.20%, salt 0, total carbohydrates other than crude fiber, by difference 20.53%, calcium 7.3 mg. per hundred grams, phosphorus 14.0 mg. per hundred grams, iron 0.25 mg. per hundred grams, copper 0.06 mg. per hundred grams.

Calories.—0 86 per gram, 24 per ounce.

Vitamins.—	I. U./100 Gm.	Mg./100 Gm.
Carotene	737	.....
Thiamine	..	0.012
Riboflavin	...	trace
Ascorbic acid	...	2.7

H. J. Heinz Company, Pittsburgh.

Heinz Strained Pears with Farina contains pears (Bartlett & Winter Nellis), durum middlings, sugar, lemon juice, water and pear juice.

Analysis (submitted by manufacturer).—Total solids 23.83%, total sugar as sucrose 15.87%, acidity as citric 0.18%, protein (N × 6.25) 0.62%, fat (by acid hydrolysis) 0.12%, crude fiber 0.69%, ash 0.21%, salt 0.01%, total carbohydrates other than crude fiber, by difference 22.01%, calcium 9 mg per hundred grams, phosphorus 16 mg. per hundred grams, iron 0.15 mg. per hundred grams, copper 0.05 mg. per hundred grams, lead 0.04 mg. per hundred grams, arsenic none.

Calories.—0.91 per gram, 26 per ounce.

Vitamins.—		
	Thiamine	0.016 mg. per 100 grams
	Riboflavin	0.013 mg. per 100 grams
	Ascorbic acid	0.680 mg. per 100 grams

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SATURDAY, FEBRUARY 2, 1946

PARA-AMINOBENZOIC ACID THERAPY FOR TSUTSUGAMUSHI FEVER

Encouraging data as to the therapeutic value of para-aminobenzoic acid in the treatment of experimental tsutsugamushi disease (scrub typhus or "dangerous bug" disease) are reported by Snyder and his associates[1] of the Cairo unit of the United States of America Typhus Commission. Previously Zarafonetis,[2] a member of the typhus commission, had found that 2 small mouselike rodents (Gerbillus gerbillus and Gerbillus pyramidun) common in Asia, Africa and southern Russia are readily susceptible to Rickettsia orientalis. When inoculated intraperitoneally, subcutaneously or intravenously 100 per cent of the gerbilles succumbed to the disease. Smears of the peritoneal and pleural exudates showed numerous pleomorphic rickettsias within the cytoplasm of the pus cells. Following reported beneficial effects of para-aminobenzoic acid in the treatment of classic louse borne typhus in human beings,[3] the commission tested its possible therapeutic effect on gerbilles after lethal inoculation with several different strains of Rickettsia orientalis. The diet of the control gerbilles was a wet mash composed of 80 Gm. of dried, powdered Egyptian bread, 2 to 4 Gm. of sodium chloride, 60 cc. of milk and 40 cc. of tap water. Immediately after inoculation the treated rodents were changed to an identical diet in which 40 cc. of 9 per cent sodium salt of para-aminobenzoic acid was substituted for tap water in the mash.

In a typical experiment 15 rodents were inoculated with a 1:10 dilution of the peritoneal washings from a fatal case of the disease. All 7 of the normally fed control animals died between the ninth and the twelfth day after inoculation. Of the 8 treated animals but 3 died, a survival rate of 62.5 per cent. In a second series inoculated with a 1:100 dilution of the same peritoneal exudate all control animals died, while the survival rate was 87.5 per cent in the animals fed on the sodium salt of para-aminobenzoic acid diet.

Since gerbilles feed only at night, a new plan of therapy was then adopted. In this plan all gerbilles given this diet received a supplementary subcutaneous injection with 0.1 cc. of a 10.4 per cent solution of the sodium salt of para-aminobenzoic acid per 25 Gm. of body weight every eight hours from the fifth to the seventeenth day after inoculation. Of 130 control gerbilles inoculated with various multilethal doses of Rickettsia orientalis only 2, or 1.5 per cent, survived. Of 128 gerbilles given the same multilethal doses and afterward treated with the combined technic 105 survived, a survival rate of 82 per cent. The survival rate was as high as 90 per cent in certain other groups similarly treated. From these and other data the typhus commission recommends a clinical trial of the sodium salt of para-aminobenzoic acid in human tsutsugamushi disease. Clinical evidence[3] with epidemic louse borne typhus has shown that it is safe to give para-aminobenzoic acid to man in large amounts.

The commission offers no theory to explain these successful therapeutic results. A plausible theory, however, was suggested at an earlier date by Greiff[4] of St. Louis University. Greiff reported a similar therapeutic success from feeding 3 per cent para-aminobenzoic acid to mice previously infected with murine typhus rickettsias. He believes that the therapeutic effects were due to metabolic stimulation of host cells. This is in line with Zinsser's[5] earlier experimental evidence. Zinsser found that, under conditions of high metabolic activity as determined by rate of oxygen consumption, multiplication of intracellular rickettsias did not occur in Maitland tissue cultures.

The probability that para-aminobenzoic acid therapy is equally applicable to all rickettsial infections is increased by the demonstration by Anigstein and Bader[6] that 2 per cent para-aminobenzoic acid added to the diet of guinea pigs previously inoculated with Rocky Mountain spotted fever will usually protect them from all signs of the disease. Untreated control guinea pigs almost invariably succumb to the infection. Successful treatment of 1 human case of Rocky Mountain spotted fever by orally administered para-aminobenzoic acid has been reported by Rose and his associates[7] of Columbia University. The efficiency of para-aminobenzoic acid in the treatment of Carrion's disease and trench fever, however, has not yet been reported.

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[1] Snyder, J. C., and Zarafonetis, C. J. D.: Proc. Soc. Exper. Biol. & Med. **60:** 115 (Oct.) 1945. Murray, E. S.; Zarafonetis, C. J. D., and Snyder, J. C., ibid. **60:** 80 (Oct.) 1945.

[2] Zarafonetis, C. J. D.: Proc. Soc. Exper. Biol. & Med. **59:** 113, 1945.

[3] Yeomans, Andrew; Snyder, J. C.; Murray, E. S.; Zarafonetis, C. J. D., and Ecke, R. S.: Therapeutic Effect of Para-Aminobenzoic Acid in Louse Borne Typhus, J. A. M. A. **126:** 349 (Oct. 7) 1944.

[4] Greiff, Donald; Pinkerton, Henry, and Moragues, Vicente: J. Exper. Med. **80:** 561 (Dec.) 1944.

[5] Zinsser, Hans, and Schoenbach, E. B.: J. Exper. Med. **66:** 207 (Aug.) 1937.

[6] Anigstein, Ludwik, and Bader, Madero N.: Science **101:** 591 (June 8) 1945.

[7] Rose, H. M.; Duane, R. B., and Fischel, E. E.: The Treatment of Spotted Fever with Para-Aminobenzoic Acid, J. A. M. A. **129:** 1160 (Dec. 22) 1945.

ORGANIZATION AGAINST CANCER IN GREAT BRITAIN

In 1942 cancer of the breast in the United Kingdom caused 7,877 deaths, of the uterus 5,094, of the larynx 1,206, of the tongue 1,033, of the lip 290. As these forms of cancer are curable in their early stages, the measures at hand to control cancer could probably have been used to better advantage. In the United States cancer of the breast in 1943 caused 16,140 deaths, of the uterus 16,968, of the larynx 1,490, of the tongue 1,231, of the lip 661. Unless treated effectively in the early stages cancer usually is fatal; hence high death rates from cancer of the forms mentioned indicate grave inadequacies in clinical cancer service, whatever the special reasons may be.

The problems of the practical application of the British Cancer Act of 1939 are now under the active consideration of governmental agencies and of medical societies.[1] In discussions on cancer both English and American physicians repeat that the patient frequently delays seeking medical care in good time from ignorance and fear. The physician may and often does fail to recognize early cancer. Nuttall [1] states that in England the condition is far advanced in 45 per cent of cancer patients when they first seek expert advice mainly because of their own fault but also to some extent of failures by attending physicians. The urgent need persists for continuous education in regard to the importance of early recognition and treatment of cancer. Cancer should be detected more and more at the stage when its presence usually can be proved only by skilful examinations. Patients should be taught to report symptoms as soon as noticed, and opportunities for immediate consultation and necessary aids to diagnosis should be provided. The slightest suspicion of cancer should be promptly confirmed or dispelled. The British Cancer Act provides not only for sufferers from cancer but also for those "suspect of cancer." When the diagnosis of cancer is made, there must not be any delay in skilled treatment. To meet these needs fully will require organized cancer services known to every practitioner and freely available to every patient, no matter what his means may be.

The British plan is to divide the country into self-contained regions with diagnostic units, treatment centers and facilities for the care of advanced cases. Public and private hospitals are to partake in each regional organization, with headquarters in a university city and with the necessary subcenters. Adequate facilities are to be organized for radiotherapy as well as for general and special surgery. The developments of British cancer services under governmental auspices will be observed with interest by all concerned with the control of cancer. Thus far there seems to be little evidence to prove that the system that prevails in Sweden, which provides free diagnosis and free transportation to government clinics, has materially reduced the deaths or death rates from cancer.

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[1] Discussion on Postwar Organization for the Treatment of Cancer, Proc. Roy. Soc. Med. 38:147 (July) 1945.

SILLY NAMES FOR PENICILLIN PRODUCTS

The name "penicillin," which truly reflects the source of the product, was deliberately chosen as a descriptive title. The modesty of the investigators led them to avoid eponyms. Now, however, leaders in the drug and chemical industries, apparently avid for the kind of profits that can be derived from well exploited medical specialties, have let their imaginations and their greed run riot in a search for specific trade names to designate some penicillin products.

In the January 1946 issue of *New Modern Drugs* are some extraordinary examples of this deliberate degradation of science. Instead of selling penicillin under its simple and well known name, they have become downright silly and offer penicillin under so many names that only a professional solver of crossword puzzles could guess the nature of the products that these names conceal.

Wyeth, Inc., is credited with marketing Amphocillin, Penioral and Bucillin, Squibb with Topicillin and Delacillin, Lederle with Ledercillin-G, and Hoffmann-La Roche, Inc., with Per-Os-Cillin. Some of these are for oral use, some for local application, one is to be mixed "before taking" with something else. The promulgators of these products and their sale are interested in helping their own pocketbooks by trying to make certain that the prescribing physician will limit himself to their products. One manufacturer naively combines his firm name with "cillin." There are more than twenty manufacturers. Carried to a logical conclusion that would give us not only "Ledercillin" but also "Squibbcillin," "Abbottcillin," "Schenleycillin" and "Commercial Solventscillin" plus some others.

But who could guess that Amphocillin and Bucillin refer to penicillin for oral use? Who can believe that Delacillin is really penicillin calcium in peanut oil and beeswax? You might surmise the nature of Ledercillin-G, but we will lay 8 to 5 that you would miss on Penioral. Would you think it useful especially for gonorrhea? Well, that isn't it. Then what about Per-Os-*Cillin*? Something concerned with an opening, but which one?

Some day scientific aims and business promotion will be more closely knit. When that day arrives every one will breathe a sigh of relief, including the promoters. Perhaps they will finally realize that a scientific approach gains the confidence of the prospective buyers and really promotes use. Until then, time marches on.

SCIENTIFIC RESEARCH IN THE FOOD AND PHARMACEUTICAL INDUSTRIES

Recent addresses[1] before associations of manufacturers have stressed the funds spent on research. Of the manufacturing industries the food industry is the most important, since its products are of the first concern to the people. This industry employs more persons and produces more goods than any other industry. The food industries entered directly into scientific research, pure and applied, about twenty-five years ago as bulk sale on a commodity basis gave way to specialty sale on a brand basis. Research is conducted by single concerns and by groups. Numerous organizations carry on research in various divisions of the food industry. The Nutrition Foundation promotes the development of the science of nutrition. Recently[2] the foundation made sixteen grants to universities in aid of research amounting to $108,000. The major basic research in nutrition has been done and presumably will be done in universities and other centers of pure research. The food industry is deeply interested in the maintenance of this activity by these institutions in the most effective way.

What is the food industry actually spending for scientific research? Dunn's estimate is 24 million dollars a year, which is 10 per cent of what all industry is reported to have spent for research in 1940. In discussing the plans and prospects for expanding the scientific research of the food industry as the basis for progress in its business and service, Dunn voices serious concern over the present deficit in scientists. The reduction in bachelor's degrees in science which would have been given but for the war is about 150,000, and only 20 per cent of the usual number of doctorate degrees in chemistry and physics were awarded in 1945.

Second only to the food industry as an agency of human health and welfare comes the pharmaceutical industry. Here too progress in business and service depends on scientific research. In answer to the question how much this industry is spending on scientific research, Dunn presents estimates showing that in 1944 the amount so spent was 12 to 14 million dollars. He points out that, calculated in percentages of sales, the pharmaceutical industry appears to be spending more for scientific research than any other major branch of manufacture. And the industry looks forward to the progressive expansion of its research activities. In all scientific research, especially the pure and fundamental, the culmination of each advance is the beginning for new advances.

The keynote of these discussions of industrial expenditures for research is that progress in the food and drug industries as economic and social organizations depends on scientific research not only to reduce the costs of their products but particularly to produce new and better foods and drugs.

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[1] Dunn, C. W.: Scientific Research in the Food Industry: Its Basic Significance, thirty-second annual address by General Counsel of Grocery Manufacturers of America, Inc., Nov. 7, 1945 in New York. Scientific Research in the Pharmaceutical Industry, address by general counsel of American Pharmaceutical Manufacturers Association at midyear meeting in New York, Dec. 11, 1945.

[2] Grants of the Nutrition Foundation, Science **102**: 661 (Dec. 28) 1945.

Current Comment

IS TUBERCULOSIS FULLY REPORTED?

The United States Public Health Service has recently released statistics on the number of cases of tuberculosis reported in relation to the number of deaths by states. Several states show a ratio of 1.0: Arkansas, South Carolina, Texas and Vermont. Rhode Island, on the other extreme, reports 5.8 cases of tuberculosis for every death recorded in that state. The simple mean in all the states reporting is 1.9 cases per death. This wide variation implies either that tuberculosis is much more frequent in some states than in others or that the thoroughness of tuberculosis case reporting varies widely. Figures from England indicate about 15 cases of tuberculosis per registered death, but the comparability with those of the United States is questionable. The evidence suggests that the recording of cases of tuberculosis in many parts of this country is incomplete. Unless this deficiency can be remedied it is almost impossible to evaluate the true proportions of the tuberculosis problem in the United States. Physicians are responsible for reporting all cases of tuberculosis to their local health departments and should see to it that this obligation is fulfilled.

SOCIAL AND ECONOMIC FACTORS IN INFANT MORTALITY

For years physicians have known that infant mortality is greatest in slum areas and that it is influenced by social and economic factors. Possibly these are more significant than the factor of medical care. Professor Dugald Baird[1] of the University of Aberdeen has analyzed the influence of social and economic factors on stillbirths and neonatal deaths. He concludes that the most probable explanation of premature labor is poor health and nutrition of the mother and that the stillbirth and neonatal mortality rates will be most substantially improved by improvement in the standard of health and nutrition of mothers in the low income groups. He found that prematurity is greater in Scotland than in England and also greater than in America. His statistics indicated that the excess of neonatal mortality in Scotland is due largely to the excess mortality from prematurity. The most common obstetric condition associated with prematurity is eclamptic toxemia, which he found to be twice as common among the poor as among the well-to-do for the same age and parity groups. Surveys showed that in Scotland before the war there was twice as much poverty as in England, unemployment was greater, and slums and squalid living conditions were much more common. A careful study of the growth of women indicated that inadequate nutrition during the period of growth results in failure of the pelvis to develop properly, so that improvement in nutrition during pregnancy increases the risk because the child is large in relation to the size of the pelvis. From his study of the situation Dr. Baird concludes that improvement in social and economic conditions is the most important single factor in bringing about a reduction in the stillbirth and neonatal mortality rates in Scotland. Women of the lower income groups have poor physique and poor general health. Therefore continued improvement following better diets and better health services given to the mother during pregnancy is not the important factor. He is convinced that a minimal rate cannot be attained until all mothers have had the advantage of good food and environment from infancy to adult life.

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[1] Baird, Dugald: The Influence of Social and Economic Factors on Stillbirths and Neonatal Deaths, J. Obst. & Gynaec. Brit. Emp. **52**: 217 (June), 339 (Aug.) 1945.

IMMOBILIZATION OF LUNGS

Barach[1] reports the results obtained on 10 patients with advanced pulmonary tuberculosis who were treated by immobilization of both lungs in his equalizing pressure chamber. Cessation of voluntary respiration occurs in the living subject when an adequate flow of oxygen into the lungs and elimination of carbon dioxide are provided. Under these conditions the proprioceptive reflexes from the lungs do not stimulate lung movement. The individual remains comfortable, free from cyanosis, without the impulse to breathe and with a motionless chest. The chemical factors in breathing take precedence over proprioceptive reflexes. The equalizing pressure chamber was developed to apply equal pressure on the inner and outer surfaces of the chest wall at the same time. Continuous arrest of normal breathing was accomplished when patients were exposed to the equalizing pressure chamber in which the same alternating pressure wave of 110 mm. of mercury was produced, but a partition between the head and the chest of the chamber made possible a simultaneous arrival of an equal pressure on the two surfaces of the chest wall. The ability to dispense with the impulse to breathe required training, which was achieved by 1 patient in a period of forty-five minutes and by the majority of patients in three to four hours. Arrest of lung movement did not create any discernible changes in the circulation. There was no apparent change in the venous pressure, pulse rate, arterial blood pressure or circulation time. When voluntary respiration is abandoned, the impulse for movement of the voluntary muscles is strikingly diminished. Local lung rest favors the process of healing by reducing changes in the physical state of the tuberculous process and, in addition, has a specific effect on cavities in which a check valve action is present. The patients were treated in this chamber from 8:30 in the morning until 9:30 at night, being removed for meals. A course of therapy in most instances consisted of four months. The condition of all patients in the series was considered either too advanced or unsuitable for thoracoplasty. Significant improvement in the condition of 6 of the 10 patients was observed. The author concludes that this type of local lung rest aids the process of healing and tends to result in collapse of cavities.

NUTRITION IN REVIEW

The Joint Legislative Committee on Nutrition of New York State, under the chairmanship of Senator Thomas C. Desmond, in its 1945 report[1] makes a number of recommendations, among them that the state recognize the need for an expanded program of nutrition education, encourage research in the field of nutrition, give new recognition to the special nutrition needs of children, give greater consideration to stiffer penalties for black marketeering and lend its influence to further experiments in the fluorination of community water. "Nutrition in Review" (Legislative Document [1945] No. 49) contains a number of interesting reports, among them an illuminating one by Dr. John M. Cassels on "The European Food Situation," on "Nutrition in Industry" by Dr. Thomas Dobbins and on the "Newburgh-Kingston Caries-Fluorine Demonstration" by Dr. David B. Ast. The report emphasizes in particular the importance of education as carried on by Cornell University, by the New York State Emergency Food Commission and by the Nutrition Foundation and the War Food Administration.

MILK TRANSMISSION OF DDT

Telford and Guthrie[1] of the Hess-Clark Research Laboratory, Ashland, Ohio, fed female rats each of which had a 1 day old litter a balanced chick mash containing 0.1 per cent of DDT. Typical tremors were noted between the sixth and thirteenth days in the mothers and between the fourteenth and fifteenth days in the young. By the eighteenth day all were dead except 1 adult and 1 nursling. Both recovered when placed on a diet free from DDT. Nine adult rats and one half-grown kitten were then fed solely on milk obtained from goats which received daily oral dosages of 1 Gm. of DDT per 8 to 9 pounds (3.6 to 4.1 Kg.) of body weight. All 10 died within two to twenty-nine days after exhibiting typical DDT tremors. Butter made from the toxic milk produced typical toxic symptoms, with eventual death in a second series of adult rats. These preliminary experiments prove that continuous oral administration of DDT to goats and rats results in the appearance of a toxic substance in their milk which produces symptoms indistinguishable from DDT intoxication. The data strongly suggest the need for more intensive research on the toxicity of milk from dairy cows which ingest DDT residues either from sprayed or from dusted forage plants or from licking themselves after being sprayed or dusted with this insecticide.

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[1] Barach, A. L.: Immobilization of Both Lungs, Am. Rev. Tuberc. **52**: 122-144 (Aug.) 1945.

[1] Report of New York State Joint Legislative Committee on Nutrition, Nutrition in Review No. 49, 1945, p. 3.

[1] Telford, H. S., and Guthrie, J. E. Science **102**: 647 (Dec. 21) 1945.

MEDICINE AND THE WAR

SURPLUS MEDICAL EQUIPMENT FOR VETERANS OF WORLD WAR II

A procedure has been worked out whereby veteran physicians, dentists and veterinarians may purchase surplus army medical equipment directly from the disposal agency. The authority for this procedure is found in Public Law 457, 78th Congress, and appropriate regulations have been issued by the Surplus Property Administration.

In order to assist the individual in obtaining surplus property, there has been prepared by the Surgeon General of the Army, in collaboration with the disposal agency, a listing of items by army medical catalogue number, standard commodity classification number and army nomenclature, together with a price set by the disposal agency. This listing includes material appropriate for a professional office which was available as "declared surplus" in various army medical depots at the time the list was prepared. Supplemental lists are to be furnished as additional items become available. Copies of this list are being made available in service command headquarters, various army hospitals, medical depots and disposal agency offices. This listing should be used by individuals in preparing requests. It should be understood that not all of this material will be available in any one particular region, nor will the quantities of any given items be sufficient to satisfy all purchasers.

Veteran physicians, dentists or veterinarians should apply to the district office of the Smaller War Plants Corporation which is located nearest the veteran's residence. Effective January 28, district offices will be absorbed by the War Assets Corporation; however, it is expected that these district offices will remain in the same location. District offices are maintained in approximately one hundred and ten of the major cities throughout the country. The function of certifying applicants as to their eligibility to purchase surplus property, now performed by the Smaller War Plants Corporation, will be assumed by the War Assets Corporation as of January 28.

Having obtained certification that the applicant is a veteran and that the property applied for is to be used in his own small enterprise, prospective purchasers may present their requirements to the nearest regional office of the disposal agency or to the nearest district office of the War Assets Corporation, listing quantities desired by stock number and nomenclature as shown on the listing. Regional offices of the Office of Surplus Property RFC have also been absorbed by the War Assets Corporation, effective January 15, at which time the War Assets Corporation, a subsidiary of RFC, assumed the disposal functions for which the Office of Surplus Property RFC had heretofore been responsible. Regional offices are located as follows:

Atlanta 3, 105 Pryor St. N.E.
Boston 11, 600 Washington Street.
Chicago 4, 209 South La Salle Street.
Cincinnati 2, 704 Race Street.
Denver 2, 728 Fifteenth Street.
Fort Worth 2, Post Office Box 1407.
Los Angeles 14, Pacific Mutual Building.
Kansas City 8, 2605 Walnut Street.
New York 1, 350 Fifth Avenue.
Philadelphia, Lafayette Building, Fifth and Chestnut streets.
San Francisco 2, 30 Van Ness Avenue.
Seattle 1, 2005 Fifth Avenue.

Regional offices will advise the applicant as to items, quantity, condition, price, availability and location of material within that region. An extract, listing items desired but not available in that region, will be forwarded by the regional office to the central stock control point in Washington. Information as to availability in other regions will be furnished by the Washington office to the regional office for transmittal to the applicant. This information will also include the quantity, condition, price and location of these items. On receipt of this information, the applicant will notify the War Assets Corporation regional or district office of the items desired, *forwarding certified check* for the total amount involved. The disposal agency will then order shipments from the army or navy storage depot, where located, in accordance with the detailed shipping instructions supplied by the applicant. Shipment will be made, transportation charges collect, to be paid by the consignee.

Although samples of equipment are available for inspection by the purchaser, they are located in various depots throughout the United States, and it is impracticable to assemble all the items in one or more locations for inspection. Further, it is impracticable for individual purchasers to visit the numerous depots where material is located in order to inspect prior to purchase. It is not possible, in case individual items of equipment are inspected by purchaser, to tag any particular piece of equipment for the individual purchaser to be held pending receipt of shipping order from the disposal agency. Purchasers are familiar with army and navy equipment, having worked with it during their military service. Prices for new, unused equipment, in excellent condition, have been set by the disposal agency. The material is classified according to condition and will be billed by the disposal agency at fair value. Prices will be scaled downward if used equipment is furnished. If only new, unused equipment, in excellent condition, is desired, applicants will so state and depots will not make substitution of material in less desirable classification. All claims and adjustments will be handled by the War Assets Corporation. These claims must be presented to the district or regional office handling the original request for purchase. It must also be understood that surplus property sales are in progress at all times and that delivery of all items selected by the applicant cannot be guaranteed, nor will back orders be established. Payments for equipment not furnished will be refunded. To the extent of availability, equipment will be shipped from the medical depot nearest the destination designated by the purchaser. However, surplus stocks are not evenly distributed throughout the army and navy medical depot system, and shipments of some of the equipment will have to be made from depots at a considerable distance from the destination.

VETERANS

APPROVE WINTER GENERAL HOSPITAL FOR VETERANS ADMINISTRATION

President Truman recently approved the transfer of Winter General Hospital, Topeka, Kan., from the Army to the Veterans Administration as part of a plan for acquiring twenty-nine new hospitals and one home for Veterans Administration use.

Dr. Karl Menninger, who served as consultant in neuropsychiatry for the hospital under army control, has been named as temporary manager of the installation until the hospital is functioning regularly and then will resume his position as consultant to the Veterans Administration.

Dedication ceremonies of the Winter General Hospital, Veterans Administration, took place on January 11.

APPOINTED DIRECTOR OF TUBERCULOSIS SERVICE

Dr. John B. Barnwell of the University of Michigan, Ann Arbor, was recently appointed director of the Veterans Administration tuberculosis service, with Col. Roy A. Wolford of Washington, D. C., as associate director.

A new program for examination and care of tuberculous veterans was recently begun, of whom there are now approximately 100,000. The purpose is to prolong the good effects of hospital treatment after a veteran leaves a tuberculosis institution and to discover, at an early stage, any relapses.

ARMY

5,000 ASTP MEDICAL OFFICERS TO BE CALLED AS REPLACEMENTS

In a recent release the War Department stated that more than 5,000 young medical officers will be called to active duty by July 1 as replacements for officers of the Medical Corps who are eligible for separation from the service. These doctors, after receiving their academic training in medicine under the Army Specialized Training Program, are now completing their training by serving internships and residencies in civilian hospitals on an inactive status.

Information of the early call to active duty has been sent to all civilian hospitals by the Surgeon General of the Army and by the Procurement and Assignment Service for Physicians, Dentists and Veterinarians.

The 5,000 doctors being called to active duty are graduates of the Army Specialized Training Program whose tours of active duty as medical officers were scheduled to begin when they had completed hospital internships and residencies, essential professional preparation not available in military installations.

Approximately 3,300 enlisted men now assigned to ASTP units for training in medicine will receive the degree of Doctor of Medicine by July 1, when the ASTP medical program is to be discontinued. This group will be called to active duty at the completion of their internships. The enlisted men assigned for instruction in the freshman, sophomore and junior classes in medicine will be separated from the program in March. Those who plan to continue their medical studies will be transferred to the Enlisted Reserve Corps and released from active military duty in order to continue their medical training in a civilian status.

Men separated from medical training under the ASTP who do not plan to continue their medical studies will be transferred to other military duties and continued on active duty until they become eligible for separation from the Army under current War Department policies.

ARMY AWARDS AND COMMENDATIONS

Captain Neil M. Forbes Jr.

The Silver Star was recently awarded to Capt. Neil M. Forbes Jr., formerly of Laurel, Miss., who served as battalion surgeon for the 185th Infantry, 40th Division. The citation stated that the award was made for gallantry in action Feb. 16, 1945, when "Captain Forbes, without regard for his own persontal safety, constantly exposed himself to heavy enemy fire to care for the wounded. On one occasion Captain Forbes received word that a soldier had sustained a severed jugular vein from enemy shrapnel on top of a hill. Realizing the danger to the patient's life and the slowness of the litter haul down the hill, Captain Forbes left the aid station, climbed part way up the hill and there, while under enemy sniper and mortar fire, worked for one and one-half hours and saved the man's life. Captain Forbes's tireless devotion to duty, his disregard for his own safety when lives of our troops are at stake, and great courage have been an inspiration to the men and a credit to the Army of the United States." Dr. Forbes graduated from the University of Tennessee College of Medicine, Memphis, in 1941 and entered the service July 2, 1942.

Lieutenant Colonel John Groopman

Lieut. Col. John Groopman, formerly of New York, was recently awarded the Air Medal "for meritorious achievement in aerial flight. He completed 151 hours of combat and operational flight between Oct. 23, 1943 and July 31, 1945, flying from bases in North Africa, India and China. These flights were made in the performance of his duties as flight surgeon and were made in unarmed transport type aircraft. Despite the dangers involved from probable attack from enemy aircraft and ground installations and adverse weather, Lieutenant Colonel Groopman demonstrated courage and determination in carrying out his missions. He went to the aid of wounded and ill personnel at forward bases and evacuated them to rear areas for treatment. The achievements of Lieutenant Colonel Groopman during the period cited reflect credit on his personal record and on the Army Air Forces." Dr. Groopman graduated from New York University College of Medicine, New York, in 1932 and entered the service Oct. 5, 1940. He has also been awarded the Purple Heart and the Soldier's Medal.

Major Cortez F. Enloe Jr.

Major Cortez F. Enloe Jr. of Manhasset, L. I., N. Y., was recently awarded the Bronze Star. The award was accompanied by the citation "for meritorious service in connection with military operations as chief medical sciences branch, Morale Division, U. S. Strategic Bombing Survey, from Feb. 5, 1945 to May 8, 1945. Because of his thorough medical professional knowledge, his technical and scientific experience in the pharmaceutical and biological industry and his knowledge of German medical and health affairs Major Enloe was given the difficult and responsible assignment of preparing plans and directing the Medical Science Branch of the Morale Division, U. S. Strategic Bombing Survey, in the scientific study of the effects of aerial bombardment on the health of the German civilian population. His enthusiasm, diplomacy and complete knowledge of his task enabled him to direct successfully the military and civilian scientists assigned to his command in the accomplishment of their medical research mission. The data compiled by this study will be of inestimable value in the future national defense plans of the United States." Dr. Enloe graduated from Friedrich Wilhelms Universität Medizinische Fakultät, Berlin, Prussia, in 1937 and entered the service Sept. 18, 1942.

Major Hugh M. Crumay

The Bronze Star and two oak leaf clusters to the Air Medal were recently awarded to Major Hugh M. Crumay, formerly of Mercer, Pa. The citation read, in part, "As air evaluation officer, Medical Section, Headquarters Far East Air Forces, Major Crumay demonstrated exceptional initiative and sound judgment in the performance of his duties." Dr. Crumay graduated from Harvard Medical School, Boston, in 1933 and entered the service July 17, 1942.

MISCELLANEOUS

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

INDIANA

Memorial Hospital, South Bend. Capacity, 275; admissions, 9,180. Mr. Vernon T. Root, Administrator (interns, July 1).

LOUISIANA

Shreveport Charity Hospital, Shreveport. Capacity, 654; admissions, 10,320. Dr. Edgar Galloway, Medical Superintendent (resident—radiology).

NEW JERSEY

St. Joseph Hospital, Paterson. Capacity, 468; admissions, 7,636. Sister Anna Rita, R.N., Superintendent (resident—mixed service).

NEW YORK

Cumberland Hospital, Brooklyn. Capacity, 400; admissions, 5,729. Dr. Max Seide, Medical Superintendent (interns, April 1, July 1).

St. Vincent's Hospital, Staten Island. Capacity, 238; admissions, 5,920. Sister Mary Ignatius, R.N., Superintendent (interns).

General Hospital, Syracuse. Capacity, 170; admissions, 3,822. Mr. Carl P. Wright, Superintendent (interns).

Wyoming County Community Hospital, Warsaw. Capacity, 135; admissions, 2,699. Mr. W. A. Copeland, Superintendent (resident—mixed service).

OHIO

Lutheran Hospital, Cleveland. Capacity, 160; admissions, 4,926. Mr. Lee S. Lanpher, Superintendent (interns).

Youngstown Hospital, Youngstown. Capacity, 622; admissions, 17,297. Mr. David A. Endres, Superintendent (interns).

SOUTH CAROLINA

Columbia Hospital, Columbia. Capacity, 506; admissions, 8,902. Mr. P. A. Hodges Jr., Acting Superintendent (8 interns, April 1).

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Arizona

Herianek, Z. A., Capt., 906 Professional Bldg., Phoenix.

California

Bergman, H. H., Major, 3596 Mountain View, East Pasadena.
Bossert, Robert H., Capt., 319 S. San Fernando Rd., Burbank.
Burger, Raymond A., Capt., 1033 Gayley Ave., W. Los Angeles.
Doehring, P. C., Jr., Major, 1077 E. Foothill Blvd., Altadena.
Dorius, Glenn R., Major, 2206 MacArthur Blvd., Oakland.
Fehlmann, Frederick H., Lt. Col., 910 10th Ave., San Diego.
Fishbein, Allan A., Major, 2245 Anita St., Stockton.
Holleran, George C., Capt., 591 Western Ave., Brawley.
Hughes, Clifford M., Capt., 1426 Fair Oaks Ave., S. Pasadena.
Jorgensen, Melford B., Capt., Box 249, Los Gatos.
Kahler, James E., Major, 520 S. Lucerne Blvd., Los Angeles.
Kelley, William T., Capt., 652 Deodar, Oxnard.
Kocher, Rudolph A., Lt. Col., P. O. Box 926, Carmel.
Lewis, Robert, Capt., 2614 Haste, Berkeley.
Loomis, William F., Major, 28 Las Cascades, Orinda.
Lowe, Luther B., Capt., Crow's Landing.
Manning, John G., Lt. Col., 2819 2d Ave., Los Angeles.
Pedersen, Christian B., Col., "casa Sierra," Tahoe.
Pogorel, Bernard S., Major, L.A. Co. G.H., Los Angeles.
Polse, Max L., Capt., Flood Bldg., San Francisco.
Rock, Joseph H., Major, Vet. Adm. Facility, Los Angeles.
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Illinois

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Choy, J. K. L., Capt., c/o Brinkman, 1911 W. Adams, Chicago.
Doud, Ernest A., Capt., 40 E. Oak St., Chicago.
Dulin, Theodore J., Major, Kankakee State Hosp., Kankakee.
Dwan, Francis M., 1st. Lt., 5458 W. Walton, Chicago.
Edwards, Gilbert H., Capt., Pinckneyville.
Eisin, Walter M., Capt., 7119 S. Sacramento Ave., Chicago.
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Hora, James L., Capt., 5742 W. Cermak Road, Cicero.
Jones, Marshall H., Capt., 1406 E. 68th St., Chicago.
Joss, Edward F., Capt., 408 E. S. St., Dwight.
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Kerst, John A., Major, Rt. 4, Springfield.
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Kross, Irvin W., Capt., 7628 S. Bishop St., Chicago.
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Lerner, Louis S., Major, 4324 W. 63d St., Chicago.
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Miller, Leo F., Capt., 310 S. Michigan Ave., Chicago.
Mulliken, Oscar D., Capt., 832 N. Spring St., Elgin.
Neims, Irving M., Capt., 3509 W. Adams St., Chicago.
Nelson, George W., Capt., 201 N. Rockford Ave., Rockford.
Neuchiller, Bernard B., Capt., 444 W. Jackson St., Woodstock.
Orrico, Joseph F., Capt., 1029 S. Newberry Ave., Chicago.
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Perkins, William C., Major, 443 Summit Ave., West Chicago.
Pierce, Mila I., Capt., 1835 S. Spaulding Ave., Chicago.
Pugh, Charles E. Jr., Capt., 50 N. Menard Ave., Chicago.
Reimers, Leslie H., 1st Lt., 4301 N. Ashland, Chicago.
Rest, David, Capt., 2749 N. Sawyer Ave., Chicago.
Restarski, Alvin F., Major, 1609 Milwaukee Ave., Chicago.
Robertson, Thomas S., Capt., 1400 W. Monroe St., Chicago.
Rose, Frederick E., Major, Millstadt.
Rosi, Reno, Major, 635 E. 111 St., Chicago.
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Vandermyde, Isaac, Capt., Prophetstown.
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Weinstein, Leonard, Capt., Cook County Hosp., Chicago.
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Weston, Charles L., Capt., 1200 W. Murray St., Macomb.
Wrork, Donald H., Capt., 316 Fisher St., Rockford.
Wunsch, Charles L., Capt., 319 Simms St., Aurora.

Kansas

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Maine

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Massachusetts

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Brown, Stephen, Capt., 540 Elm St., Northampton.
Burrier, Walter P., Lt. Col., Vet. Hosp., Bedford.
Cohen, Jerome J., Capt., 74 Monadnock Rd., Worcester.
Colpoys, William P. Jr., Major, 106 Melville Ave., Dorchester.
Constantian, H. M., Capt., 39 Burncoat St., Worcester.
Cooperstein, Menahem, Capt., 407 Morton St., Stoughton.
Dennis, Richard H., Major, 129 Corey St., West Roxbury.
Dimmler, Charles L. Jr., Capt., 300 Longwood Ave., Boston.
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Hamilton, Thomas S., Lt. Col., Mass. Gen. Hosp. Boston.
Hittel, Albert A., Capt., 24 Mattapan St., Mattapan.
Ingalls, Theodore H., Capt., 22 Kilburn Rd., Belmont.
Kelly, Edward J., Capt., 83 Tonawanda St., Dorchester.
Lepore, John J., Capt., 96 W. Main St., Marlboro.
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Lorge, Heinz J., Capt., State San., Rutland.
Loughlin, John J., Capt., 4 Holyoke St., Lynn.
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Moulton, Charles W., Capt., 740 Harrison Ave., Boston.
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Smith, Robert M., Major, 69 Elm St., Cohasset.
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Michigan

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Harrel, Donald G., Major, Receiving Hosp., Detroit.
Hoyt, Arthur W., Major, 176 N. Ave., Battle Creek.
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Fritsche, Carl J., Capt., Summit Ave., New Ulm.
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Harms, Harold H., Capt., 4228 Dewey Ave., Omaha.
Harris, Albert M., Major, University Hosp., Omaha.
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Lotman, Harry A., Lt. Col., 2145 Q St., Lincoln.
Vandiver, Howard A., Capt., Ogallala.

New Hampshire

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LaPointe, Roland E., Capt., 384 Wilson St., Manchester.

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Balles, Edward Samuel, Capt., 392 Park Ave., Paterson.
Banta, Raymond E., Major, 118 E. Clinton Ave., Tenafly.
Barone, Francis A., Major, 135 Bergen Ave., Jersey City.
Barr, Joseph, Capt., 496 15th Ave., Paterson.
Cooper, Robert A., Capt., 7137 Park Ave., Pemsaukeu.
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Dwoyer, Leon C., Major, 420 N. Wood Ave., Linden.
Fine, Irvin J., Capt., 30 Gordon St., Perth Amboy.
Friedenthal, Bernard, Major, 111 Bayard St., New Brunswick.
Gamsu, George, Lt. Col., 114 Weequahic Ave., Newark.
Goldstein, Samuel, Capt., 616 Farragut Ave., Mays Landing.
Harwitz, Morris, Capt., 418 Center St., Trenton.
Hawes, Vernon L., Capt., 63 Church St., Ramsey.
Kainer, Herbert, Capt., 851 Boulevard E., Weehawken.
Kearney, Edward P., Capt., 83 S. Fullerton Ave., Montcla
Kimmel, Charles, Capt., 488 Broad St., Bloomfield.
Lapin, Louis P., Capt., 15 Crosswicks St., Bordentown.
Levinson, David M., Major, 58 Clinton Pl., Newark.
Levinson, Ruben, 1st Lt., 241 State St., Perth Amboy.
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Muster, William J., Capt., 102 Liberty St., Ridgewood.
Papera, John J., Capt., 12 Sutton Pl., Verona.
Parry, Allen A., Capt., 46 Green Village Rd., Madison.
Pizzi, Peter J., Capt., 321 Harrison Ave., Garfield.
Provenzano, Samuel, Capt., 240 S. 7th St., Newark.
Roberts, Charles D., Major, 308 Booth Ave., Englewood.
Romano, Frank R., Capt., 926 Park Ave., Plainfield.
Seto, Stanford P. T., Capt., Blackwood.
Shaen, Edward, Capt., 3129 River Ave., Camden.
Shefrin, Norman, Capt., 1411 37th St., North Bergen.
Thompson, Edward C., Capt., 373 Park Ave., Paterson.
Tobey, Howard C., Capt., Elizabeth Gen. Hosp., Elizabeth.
Torppey, John J., Capt., 472 Sanford Ave., Newark.
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Wallack, Eli A., 1st Lt., 333 Fairmount Ave., Jersey City.
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New Mexico

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New York

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Agus, Haim, Capt., 5115 13th Ave., Brooklyn.
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Alexander, Frederick A. D., Capt., 521 Mercer St., Albany.
Alley, John L., Capt., 225 Lincoln Pl., Brooklyn.
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Ambinder, Nathan, Capt., 1212 5th Ave., Manhattan, N. Y.
Ande, Willard F., Capt., Kings County Hosp., Brooklyn.
Anfanger, Herman, Capt., 527 W. 110th St., New York.
Angelo, Martin A., Capt., 455 Eagle St., Buffalo.
Ash, Henry T., Capt., Kings County Hosp., Brooklyn.
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Barry, David J., Capt., 500 W. 58th St., New York.
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Brescia, James Salvatore, Capt., Montgomery.
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Clarke, Elisha Y., Capt., 51 Notre Dame St., Glens Falls.
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Cohlan, Sidney Q., Capt., 510 Shephard Ave., Brooklyn.
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Cole, Charles H., Major, 37 Stone Ave., Ossining.
Coleman, Jules V., Major, 43 E. 78th St., New York.
Cook, Edward D., Lt. Col., 33 Burbank Dr., Snyder.

PHYSICIANS SEPARATED FROM SERVICE

New York—Continued

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Cronheim, Kurt P., Capt., 5 W. 86th St., New York.
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Dacks, George, Major, 26 Pickford Dr., Rochester.
Davis, Arthur C., Capt., 15 Notre Dame St., Glens Falls.
Davis, Richard F., Major, 24 Thomas Ave., Batavia.
Day, Marvin B., Capt., 129 E. 19th St., New York.
Denniston, Joseph C., Capt., Kenwood Apts., Middle Neck Rd., Great Neck, L. I.
Dickler, Emmanuel, Capt., 16 E. 98th St., New York.
Donaldson, James R., Capt., 155 E. 93d St., New York.
Doney, William F., Capt., 2 Notre Dame St., Glens Falls.
Duckman, Simon, Capt., 904 Bushwick Ave., Brooklyn.
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Feinberg, Irving P., Capt., Mary Immaculate Hosp., Jamaica.
Fierer, Leon E., Capt., 2303 Newark Ave., Brooklyn.
Flesch, Paul, Capt., 211 E. 179th St., Bronx.
Flowers, Hiland L., Lt. Col., 631 Kappock St., Bronx.
Fortunoff, Saul, Major, 29 Mount Joy Pl., New Rochelle.
Foster, Harold E., Lt. Col., Vet. Adm., Northport.
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Frank, Morris J., 1st Lt., 16 Church St., Beacon.
Freedman, Bernard I., Capt., 1150 Brighton Beach, New York.
French, Willard G., Capt., 815 Carroll St., Brooklyn.
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Ganz, Samuel E., Capt., 171 W. 79th St., New York.
Garson, Byron J., Lt. Col., 40 Monroe St., Apt. DD, New York.
Gedroiz, Anthony B., Capt., 17 Church St., Saranac Lake.
Generson, Leonard R., Capt., 3576 DeKalb Ave., Bronx.
Gerberg, Israel, Capt., 284 E. 3d St., Brooklyn.
Ginzburg, Leon, Major, 152 E. 94th St., New York.
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Goldberg, Lawrence, Capt., 1920 77th St., Brooklyn.
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Goldblatt, Aaron, Capt., 35-18 31st Ave., Astoria.
Goldfinger, Maurice F., Major, 1716 Avenue T, Brooklyn.
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Goldstein; Jacob D., Lt. Col., 63 Lettington Dr., Rochester.
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Gorman, Warren F., Capt., 133-33 Sanford Ave., Flushing.
Graniero, Frank A., Capt., 752 Rutger St., Utica.
Graziani, John G., Capt., 359 Commerce St., Hawthorne.
Grossman, Jacob, Capt., 297 E. 10th St., New York.
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Hill, George W., Capt., 30 State St., Ossining.
Hirst, George K., Capt., 58-39 217th St., Bayside, L. I.
Hoffman, Benjamin, Capt., 285 E. 95th St., Brooklyn.
Hogan, Raymond L., Capt., 54 77th-St., Brooklyn.
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New York—Continued

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Lubansky, William, Capt., 119-45 Sutphin Blvd., Jamaica.
Lyons, Hyman C., Capt., 76 Sunnyside Ave., Brooklyn.
McCuaig, Duncan R., Major., 105 E. 63d St., New York.
McKay, Robert D., Lt. Col., 233 87th St., Brooklyn.
MacMillan, Stuart F., Major, 1721 Athol Rd., Schenectady.
Madison, George B., Capt., 1121 Teall Ave., Syracuse.
Manocchio, Angelo C., Capt., 2325 Ocean Parkway, Brooklyn.
Markulis, Emil J., Capt., E. Quaker St., Orchard Park.
Martoccio,-Rocco J., Capt., 818 Bleecker St., Utica.
Mascaro, Joseph R., Major, 513 Bleecker St., Utica.
Maskin, Meyer H., Major, 34 W. 58th St., New York.
Mehrling, John H., Capt., 1433 Hancock St., Brooklyn.
Merin, Joseph H., Major, Bolton Landing.
Michelson, Alfred, Capt., 85 Olsen St., Valley Stream.
Miller John K., Lt. Col., 302 Washington Ave., Albany.
Miller, Morris L., Capt., 339 Wyona St., Brooklyn.
Montilli, Pasquale F., Capt., 273 Pleasant Ave., New York.
Moore, Alfred L., Capt., 43-55 Kissena Blvd., Flushing.
Moore, Samuel B., Jr., Capt., Eastview Farm, Eastview.
Moskowitz, Eugene, Capt., 20 Roosevelt Square W., Mt. Vernon.
Moss, Theodore J., Capt., 115 Pembroke Pl., Kew Gardens.
Muccillo, Carmine A., 1st Lt., 1565 74th St., Brooklyn.
Mullen, Joseph R., Capt., 296 Wheatfield St., North Tonawanda.
Mushabac, Irving R., Capt., 1325 Grand Concourse, Bronx.
Muss, Israel, Capt., 1030 E. Parkway, Brooklyn.
Naclerio, Thomas A., Capt., 104-40 205 Pl., Hollis.
Neier, Charles R., Capt., 85-35 150th St., Jamaica.
Neigus, Irwin, Lt. Col., 1497 Carroll St., Brooklyn.
Nonas, Gerson, Capt., 899 Belmont Ave., Brooklyn.
Norem, Walter, Major, 156 5th Ave., New York.
Novell, Samuel, Capt., 114-01 134th St., S. Ozone Park, L. I.
Novikoff, Samuel S., Capt., 1018 E. 163d St., Bronx.
Oppel, Theodore W., Lt. Col., 315 E. 68th St., New York.
Pallone, Amedo W., 1st Lt., 7604 17th St., Flushing.
Parke, William M. Jr., Capt., 1 Pierrepont St., Brooklyn.
Parnell, Christopher Jr., Capt., 1730 Highland Ave., Rochester.
Pasachoff, Samuel S., Capt., 910 Grand Concourse, New York.
Pearlman, Stanley M., Capt., 4700 Broadway, New York.
Perillo, Januarius A., Capt., 434 Seneca St., Buffalo.
Piegari, Felix H., Capt., 4039 Carpenter Ave., Bronx.
Polzinetti, Mario J., 1st Lt., 1529 Bay Ridge Pkwy, Brooklyn.

PHYSICIANS SEPARATED FROM SERVICE

New York—Continued

Potter, Stanley B., Capt., 104 Reid St., Fort Plain.
Price, Louis A., Capt., 35-45 79th St., Jackson Heights.
Pulvino, John L., Capt., 38 W. Genesse St., Clyde.
Rappaport, Eugene O., Capt., U. S. Marine Hosp., Staten Island.
Recupero, Joseph R., Capt., 1553 78th St., Brooklyn.
Rein, Charles R., Lt. Col., 580 5th Ave., New York.
Rhodes, Raymond L., 1st Lt., 11 Lexington Ave., Glens Falls.
Rice, John M., Major, Ball Ave., Watertown.
Robinson, John N., Lieut. Col., 755 Park Ave., New York.
Roemmelt, John C., Jr., Major, Rt. 2, Horseheads.
Romano, Jerome W., Capt., 181 Virginia St., Buffalo.
Rood, Morris, Major, 1336 President St., Brooklyn.
Root, John A., Capt., 87 W. Genesee St., Clyde.
Rosen, Leo, Major, 8220 Ft. Hamilton Pkwy., Brooklyn.
Rosenbaum, Louis, Capt., 300 E. 167th St., New York.
Rosenberg, Bernard H., Capt., 284 Rutledge St., Brooklyn.
Rosenfeld, Mortimer A., Major, 1208 Eastern Pkwy, Brooklyn.
Rosenthal, Harold C., Capt., 71 Hooker Ave., Poughkeepsie.
Ross, Mayer E., Capt., 1171 E. 27th St., Brooklyn.
Roth, Vernon E., Capt., 2 Reed St., Marcellus.
Rothburd, Charles M., Capt., 1641 Andrews Ave., New York.
Rousselot, Louis M., Col., 1235 Park Ave., New York.
Rower, Morris L., Capt., Box 1, Clayville.
Russell, Barnett, Capt., 1314 41st St., Brooklyn.
Rubenfeld, Sidney, Capt., 755 Park Ave., New York.
Schafer, Joseph, Capt., 33 Riverside Dr., Ap. 11A, New York.
Sheehy, James E., Capt., 29 Greene Ave., Brooklyn.
Schetlin, C. F., 1st Lt., Metropolitan Hosp., Welfare Island.
Schlesinger, Edward B., Capt., 700 W. 168th St., New York.
Schlesinger, Herbert L., Capt., 46 Cornelia St., Plattsburg.
Schloss, Jacob, Capt., 3 Linden Ave., Middletown.
Schnee, Isadore M., Capt., 789 MacDonough St., Brooklyn.
Schwartz, Julius, Capt., 8102 21st Ave., Brooklyn.
Schwartz, Mac, Capt., 1465 Broadway, New York.
Servoss, Spencer J., Capt., Rt. 3, Fruit Ave., Medina.
Shapley, Benjamin, Capt., 40-16 73d St., Jackson Heights.
Shaw, Rosewell D., Capt., Stottville.
Silverstein, Jacob M., Capt., 1561 E. 13th St., Brooklyn.
Sohmer, Abram, Lt. Col., 150-43 87th Ave., Jamaica.
Sohn, Harry, Capt., 2159 70th St., Brooklyn.
Sorrell, Alan H., Capt., 236 E. 5th St., New York.
Southwick, Edward H., Capt., 49 Jefferson Ave., White Plains.
Spatt, Samuel D., 1st Lt., 26 Balfour Pl., Brooklyn.
Spitzer, Joseph M., Lt. Col., 109-05 72d Ave., Forest Hills.
Stiegler, Charles F., Major, 163 E. 184th St., New York.
Stola, Augustus G., Capt., 3324 Perry Ave., Bronx.
Strahl, Milton I., Col., 225 New York Ave., Brooklyn.
Straubinger, Clarence A., Capt., 945 Genesse St., Buffalo.
Strenger, George, Major, 80 Lincoln Rd., Brooklyn.
Sullivan, Joseph D., Capt., 69-81 183 St., Flushing, L.I.
Tanenbaum, Morris, 1st Lt., 427 E. 98th St., Brooklyn.
Tanner, Ivins S., Capt., 611 Castleton Ave., Staten Island.
Teperson, Hyman I., Col., 744 Eastern Pkwy., Brooklyn.
Tobey, Albro C., 1st Lt., 828 Southport St., Elmira.
Toporoff, Louis, Capt., 1264 Teller Ave., New York.
Tornambe, Paul R., Capt., 338 E. 51st St., New York.
Towlen, Leonard J., Capt., 15 Vermilyea Ave., New York.
Traub, Paul M., Major, Washingtonville.
Travis, Richard E., 1st Lt., 324 Canisteo St., Hornell.
Trainor, George M., Capt., 104 Chelmsford Rd., Rochester.
Trutt, Irving, Major, 505 Avenue O, Brooklyn.
Tuby, Robert, Major, 868 Park Place, Brooklyn.
Turetsky, Samuel, Capt., 426 Rockaway Pkwy, Brooklyn.
Urbanowicz, Stanley T., Major, 1153 Broadway, Buffalo.
Vacca, Joseph G., Lt. Col., Benedectine Hosp., Kingston.
Van Hoy, Joe M., 1st Lt., Bellevue Hosp., New York.
Vanderburgh, Alexander, Capt., 85 Main St., Brewster.
Wadsworth, John H., Capt., 33 Grand St., Cobleskill.
Walls, Walter S., Lt. Col., 211 Lancaster Ave., Buffalo.
Ward, Robert L., Capt., 29-36 Curtis St., E. Elmhurst.
Welsh, John J., Major, 103-25 35th Ave., Corona.
W ston, Aaron S., Capt., 662 Miller Ave., Brooklyn.
Williams, G. D. (colored) Capt., 200 W. 113th St., New York.
Wolarsky, William, Capt., 50 W. 182d St., New York.
Wolfe, Herbert S., Major, 280 E. 173d St., Bronx.
Wright, Herbert John Jr., 1st Lt., St. Lukes Hosp., New York.
Zimmerman, Isidore, Capt., 5758 Kings Highway, Brooklyn.
Ziskind, Joseph, Major, 109 W. 120th St., New York.
Zurlo, Dominick A., 1st Lt., 94 Warren St., Glens Falls.

North Carolina

Adkins, Trogler F., Major, 2101 Club Blvd., Durham.
Baird, John A., Major, Vet. Adm. Facility, Fayetteville.
Brown, Charles W., Jr., Capt., Longwood Pk., Hamlet.

North Carolina—Continued

Brunson, Edward P., Lt. Col., 1025 E. Main St., Albermarle.
Bugg, Everett I., Jr., Major, Forest Hills, Durham.
Byerly, James H., Major, 316 Greensboro Ave., Sanford.
Daniel, Louie S., Capt., Bailey.
Dawson, Alonzo R., Lt. Col., Jefferson Stand. Life Ins. Co., Greensboro.
Edmondson, Frank, 1st Lt., 111 W. Phillip St., Tarboro.
Elliott, Julian C., Capt., Oxford.
Lentz, Julian C., Jr., 1st Lt., 1006 Lamond Ave., Durham.
Lincicome, Robert C., Capt., Duke Hosp., Durham.
Long, William M., Major, Mocksville Hosp., Mocksville.
Lustgarten, Jack G., Capt., Buxton.
Markham, Blackwell, Capt., 516 Jackson St., Durham.
Phifer, Edward W., Capt., Morgantown.
Reque, Paul G., Major, 2023 Sprunt St., Durham.
Tyson, Woodrow W., Major, Mebane.

North Dakota

Canterbury, Ellis A., Capt., Grand Forks.
Dillard, James R., Lt. Col., 303 Black Bldg., Fargo.
Tyson, John J., Major, 1128 7th St. N., Fargo.

Ohio

Anagnost, Basil D., Capt., 105 17th St., Toledo.
Baker, Conrad S., Capt., 240 Woolper Ave., Cincinnati.
Baube, John Louis, Major, 926 E. High St., Mt. Vernon.
Boettner, John Fletcher, Lt. Col., 4360 E. Blvd., Cleveland.
Boice, Robert Roland, Major, 200½ East Main St., Pomeroy.
Bowman, Robert E., Lt. Col., 16129 Euclid Ave., Cleveland.
Broglio, A. S., Major, 10618 S. Highland Ave., Grafield Hgts.
Budd, John H., Capt., 4207 Archwood Ave., Cleveland.
Burgin, Bernard, Capt., 3580 Bogart Ave., Cincinnati.
Campion, Woodrow M., Major, Cleveland Clinic, Cleveland.
Caruso, Rocco J., Capt., 412 E. Main St., Eaton.
Catalona, William., Capt., Charity Hosp., Cleveland.
Chaney, Wilford E., 1st Lt., RFD, Pratts Fork.
Damstra, Eugene F., Major, 935 Harvard Blvd., Dayton.
Davis, Daniel, Capt., 2142 N. Cove Blvd., Toledo.
Dillahunt, David G., Capt., 3709 N. High St., Columbus.
Eisenberg, Samuel H., Major, 3424 S. Main St., Akron.
Engel, Walter G., Major, 4051 Clifton Ave., Cincinnati.
Falor, William H., Major, Akron City Hosp., Akron.
Fantum, O. J., Major, Van West.
Farris, Melvin E. (colored), 1st Lt., 1461 Crawford, Cleveland.
Gillespie, Benjamin S., Capt., Tacoma.
Gordon, Nathan G., Capt., Edwin Shaw San., Akron.
Greenberg, S. L., Major, Natl. Exch. Bank Bldg., Steubenville.
Haas, Max, Capt., 1308 17th St., Portsmouth.
Hamilton, Lester A., 1st Lt., 99 May Ave., Athens.
Hanrahan, F. R. Jr., Capt., 2236 Harcourt, Cleveland Heights.
Hanus, Joseph J., Capt., Vet. Adm. Facility, Chillicothe.
Harris, William G., Capt., 718 Elm St., Martins Ferry.
Hastings, Warren C., Capt., 1618 E. 115th St., Cleveland.
Hirst, David L., Capt., 102 S. 5th St., Miamisburg.
Inskeep, Lewis C., Major, 222 Lincoln Ave., Urbana.
Johnson, Walter A., Capt., 229 Superior St., Rossford.
Keller, William M., Capt., Box 702, Lodie.
Kessler, Ralph J., Capt., 4426 Glenway Ave., Cincinnati.
Keys, Francis G., Capt., 2416 Grant Ave., Cuyahoga Falls.
Knapp, Jack D., Capt., Lore City.
Krasne, Saul I., Capt., 470 Euclid, Wickliffe.
Krieger, Harvey, Capt., 2400 Ashurst Rd., University Heights.
Lapp, Henry T., Lt. Col., Utica.
Lerner, David L., Lt. Col., 3969 Lowry Ave., Cincinnati.
Leuchtag, Harry H., 1st Lt., 90 W. Long, Akron.
Levin, David K., Capt., The Plaza, Monroe St., Toledo.
Lytle, Robert P., Lt. Col., 14817 Shaker Blvd., Cleveland.
McCaffery, Robert J., Capt., 1595 Riverside Dr., Lakewood.
McCall, Edward W., Capt., Sciotoville Sta., Portsmouth.
Marley, Harold V., Capt., 19511 Nottingham Rd., Cleveland.
Messenger, Harold M., Major, 210 E. Main St., New London.
Miller, John F., Major, 482 Hudson Ave., Newark.
Nimitz, H. J., Lt. Col., Hamilton Co. Tuber. Hosp., Cincinnati.
Novinsky, Abraham, 1st Lt., 111 N. East St., Bethel.
Podesta, Joseph J., Major, 815 Ludlow Ave., Cincinnati.
Preston, Burman H., Capt., 3463 Cheviot Ave., Cincinnati.
Recroft, E. W., Capt., 18717 Winslow Rd., Cleveland.
Repasky, John G., Capt., Rt. 6, Box 510, Akron.
Schultz, William R., Capt., 841 Forest Dr., Wooster.
Seesholtz, John R., Major, 1317 Sylvania Ave., Toledo.
Smith, Kenneth M., Lt. Col., 1505 W. Seventh Ave., Columbus.
Smith, Merl B., Capt., 1015 Fernwood Ave., Toledo.
Taliak, Martin B., Capt., Pearl Rd., Strongville.
Thomas, Edward, Capt., Rt. 3, Youngstown.

PHYSICIANS SEPARATED FROM SERVICE

Ohio—Continued

Thompson, Roy H., Lt. Col., 1745½ Cliffview Rd., Cleveland.
Thornton, John J., Major, 2064 Adelbert Rd., Cleveland.
Udelf, Maxwell S., Major, 1021 Prospect, Cleveland.
Vail, Derrick T., Col., 2349 Bedford Ave., Cincinnati.
Vandeman, Philip R., Capt., 828 Fertuson Ave., Dayton.
Wade, Reynolds W. Jr., Capt., 4134 Vermass Ave., Toledo.
Welch, Jack H., Capt., 1832 Indianola Ave., Columbus.
Werle, Jacob M., Capt., 4478 Broadale Ave., Cleveland.
Williams, Foster M., Capt., 2901 Montana Ave., Cincinnati.
Yospur, D. H., Capt., Ohio Hosp. for Epileptics, Gallipolis.
Zeiders, Glenn W., Major, 303 30th St. N.W., Canton.

Pennsylvania

Abrams, Frank, Capt., 311 Amber St., Pittsburgh.
Bacchus, N. E., (colored) Capt., 1417 Lombard St., Phila.
Barratt, William E., 1st Lt., 186 10th St., Erie.
Behrend, Albert. Lt. Col., 1738 Pine St., Philadelphia.
Bower, John R., Capt., 350 W. Main St., Kutztown.
Bowman, H. W., Capt., 111 McCann Pl., Mt. Lebanon, Pittsbg.
Boyer, Randal A., Lt. Col., 4043 Baltimore Ave., Philadelphia.
Brandon, Thomas C., Major, 1075 W. 4th St., Williamsport.
Briant, William W. Jr., Lt. Col., 210 Seneca Dr., Mt. Lebanon.
Brice, Gratien B., Major, 214 N. Drake St., Titusville.
Brommer, Oliver R., Major, 3302 N. Broad St., Philadelphia.
Brown, Harry, Capt., Glen Moore.
Bruce, Edwin T. Jr., Capt., 7934 Cedarbrook Ave., Philadelphia.
Buch, Joseph J., Major, 103 Meadow Ave., Charleroi.
Burks, Charles J., Capt., 1422 Porterfield St., Pittsburgh.
Clark, John C., Major, 2228 S. Broad St., Philadelphia.
Clark, Walter S., Jr., Capt., 33 Main St., Burgettstown.
Clime, Gilbert N., Capt., 121 E. Lemon St., Lancaster.
Close, Henry P., Major, 99 W. Washington Lane, Philadelphia.
Closterman, Donald F., Capt., 505 Rutter Ave., Kingston.
Corman, Paul M., Capt., 110 N. Allegheny St., Bellefonte.
Cribbs, Delmas L., Capt., R. D. 4, Butler.
Crouse, George W., Capt., Smithton.
Daley, Norman L., Capt., 257 E. Princess St., York.
Dierwechter, R. J., Capt., 7222 Marsden St., Philadelphia.
Ehrler, August H., Major, 103 W. Main St., North East.
Eksterowicz, Francis C., Capt., 1553 E. Berks, Philadelphia.
Fannin, Thomas S., Capt., 16 Bushnell St., Bradford.
Feldman, Hyman A., Capt., 323 S. 20th St., Philadelphia.
Fischer, Arthur J., Capt., 5723 Solway St., Pittsburgh.
Gansman, David H., Capt., 278 W. Harvey St., Philadelphia.
Gaskill, H. S., Major, Merion & Yarrow Aves., Bryn Mawr.
Ginsburg, Isadore W., Major, 1301 Market St., Linwood.
Grady, James W., Capt., 126 Venango St., Johnstown.
Goldberg, Harold E., Capt., 413 S. Broad St., Philadelphia.
Grossman, Aaron, Major, 1350 Hamilton St., Allentown.
Gruber, Charles M., Jr., Capt., 128 Overhill Rd., Bala Cynwyd.
Grunnagle, J. F., Lt. Col., 4716 Ellsworth Ave., Pittsburgh.
Haimowitz, Samuel I., Capt., 1726 N. Paxon St., Philadelphia.
H. ines, Harlan F., Capt., 7115 Llanfair Rd., Upper Darby.
Halporn, Benjamin, Capt., 1500 State St., Harrisburg.
Hand, Patrick J., Lt. Col., 111 N. Chester Pike, Glenolden.
Handler, S. Herbert, Capt., 882 N. 41st St., Philadelphia.
Harenski, Joseph E., Major, 38 Pocono, Greentree, Pittsburgh.
Hetrick, Gurney E., Capt., Lewisberry.
Hirsh, Herman, Capt., 1324 State St., Harrisburg.
Hoffman, Richards H., Major, 123 N. Allegheny St., Bellefonte.
Horn, Edward T., Jr., Capt., Reeders.
Jones, Charles G., Major, Paxtonville.
Jones, Clement R., Jr., Major, Dixmont Hospital, Dixmont.
Kaufman, Benjamin V., Capt., 1213 Vine St., Scranton.
Keefer, George P., Capt., 134 Fairview Rd., Springfield.
Keeling, Edward J., Major, 339 Wood St., Clarion.
Kirkwood, Turney L., Capt., Kittanning.
Kline, Robert W., 1st Lt., 517 Locust St., Kittaning.
Krieger, Alexander A., Major, 5526 Cavode St., Pittsburgh.
Lauria, Michael H., Capt., 2122 S. 15th St., Philadelphia.
Lavell, Meyer Q., Capt., 1000 Main St., Darby.
Lavelle, Paul E., Capt., Torrance State Hosp., Torrance.
Lerch, Thomas V. R., Major, 1136 Penn. Ave., Wyomissing.
Lieberman, George E., Capt., 4206 Chestnut St., Philadelphia.
Limberger, William A., Capt., 301 S. Church St., W. Chester.
Linn, Robert H., 1st Lt., Rawn Ave., Graterford.
Lipshutz, Harold, Capt., 8226 Westminster Rd., Elkins Park.
Mahoney, Vincent P., Major, 402 S. Ninth St., Connellsville.
Melnicove, Sidney, Capt., 33 E. Pottsville St., Pine Grove.
Neefe, John R., Capt., 4300 Spruce St., Philadelphia.
O'Hora, William A., Capt., 510 3d Ave., Scranton.
Phillips, Edward M., Capt., 410 Washington Rd., Pittsburgh.
Pogorzelski, George H., 1st Lt., 1226 Parade St., Erie.

Pennsylvania—Continued

Powell, Sydney J., Jr., Major, 29 Saunders Ave., Philadelphia.
Riley, Frank W., Major, 818 N. Bromley Ave., Scranton.
Rise, Wilson S., Capt., 1549 Ligonier St., Latrobe.
Robins, Isadore M., Major, 73 Main St., Luzerne.
Rosenberg, Irving, Capt., 4547 N. Warnock St., Philadelphia.
Royster, Henry P., Major, Univ. Hosp., Philadelphia.
Rudolph, Joseph, Capt., 110 E. Main St., Norristown.
Ryan, James J., Major, 4920 City Line, Philadelphia.
Schachterle, Ralph E., Capt., 123 E. Main St., Ephrata.
Schlechter, C. F., Capt., 1651 N. Cadwallader St., Philadelphia
Schnall, Charles, Major, 728 N. 2d St., Philadelphia.
Schofield, J. T., Jr., Major, 5010 Castor Ave., Frankford, Phila.
Scully, John P., Capt., 6211 Howe St., Pittsburgh.
Sheedy, Leo P., Lt. Col., 6944 Thomas Blvd., Pittsburgh.
Silverblatt, Bernard L., Capt., 1825 Wightman St., Pittsburgh.
Stein, Samuel C., Capt., 919 N. 42d St., Philadelphia.
Strong, Paul T., Major, Chester Rd. & Harvard, Swarthmore.
Sutton, James A., Major, Avonmore.
Tuft, Harold S., Capt., 5609 Florence Ave., Philadelphia.
Underwood, Harry B., Major, 240 S. 2d St., Bangor.
Urbaitis, Peter W., Major, State Hospital, Wernersville.
Van Tilborg, L. D., Major, 7848 Montgomery Ave., Elkins Pk.
Wall, Norman M., Major, 127 N. 2d St., Girardville.
Warnick, Richard D., Capt., 4010 Hartel St., Philadelphia.
Welsh, Albert E., Jr., Major, 2001 Kinsey St., Philadelphia.
Werts, Kenneth G., Capt., Westport.
Whitaker, C. F., Capt., 208 S. Winebiddle, Pittsburgh.
Wright, Harold S., 1st Lt., 1003 Penna Ave., Brookline.
Zubritsky, Paul D., Capt., 615 Island Ave., McKees Rocks.

Rhode Island

Egan, Thomas A., Capt., 135 Ardmore Ave., Providence.
Hennessey, Kieran W., Capt., 520 E. Ave., Pawtucket.
Kiene, Hugh E., Lt. Col., 535 Lloyd Ave., Providence.
Wadsworth, George L., Capt., Rhode Island St. Hosp., Howard.

South Carolina

Adams, Edward N., Lt. Col., % McLeod Infirmary, Florence.
Brown, George C. Jr., Major, Walterboro.
Davis, John M., Lt. Col., 1731 College St., Columbia.
Hall, Henry F. Jr., Capt., Wagener.
Hamer, Eugene F., Capt., McColl.
Hankins, Thomas C., Capt., 108 Wilcox Ave., Marion.
Houseal, Robert W., Major, 909 College St., Newberry.
McFadden, Dossey H., Capt., 15 Cleveland St., Clinton.
McLane, Francis C., Major, N. Main St., Abbeville.
Meyers, Lewis, Capt., 301 W. Faris Rd., Greenville.
Michie, Donald E., Capt., 324 E. Godbald St., Marion.
Morse, Stanley F., Jr., Capt., Edgehill Plantation, Sumter.
Parker, Edward F., Major, 70 Hasell St., Charleston.
Thomason, Eddie H., 1st Lt., Olanta.
Way, Roger A., Major, 145 N. Converse St., Spartanburg.

South Dakota

Davidson, Henry E., Major, 415 W. Main St., Lead.
Dick, Fred, Jr., 1st Lt., 320 N. Dakota St., Vermillion.
Lipton, Morris L., Major, Rosebud.
Tiller, Harry C., 1st Lt., Mayesville.
Wyatt, Charles N., Col., 301 E. Coffee St., Greenville.

Tennessee

Barkdull, Edward W., Capt., Union City.
Bevis, William M., Lt. Col., Vet. Adm. Facility, Murfreesboro.
Brask, Holger K., Capt., Vanderbilt Univ. Hosp., Nashville.
Brooks, Julius C., Capt., 444 S. Crest Rd., Chattanooga.
Brown, Summer W., 1st Lt., 525 McCallie Ave., Chattanooga.
Chesney, Luther W., Capt., 2439 E. Fifth Ave., Knoxville.
Cogbill, Charles L. Jr., Capt., LaGrante.
Dietrich, Julius P., Capt., 32 Sawmill Rd., Crossville.
Faulkner, Roscoe, Major, Trenton.
Gambill, Ira M., Major, Neva.
Gilliand, Harold L., Major, St. Thomas Hosp., Nashville.
Hartung, Carl A., Major, 721 Broad St., Chattanooga.
Ingram, Calvin J., Capt., 128 Hurt St., Jackson.
Leeper, James A., Major, Lenoir City.
Lewis, Wiley D., Major, Western State Hosp., Boli
Morton, James F., Capt., 1550 Waverly Rd., Kin
Overton, F. W. T., Lt. Col., 516 Bennie Dillo
Preas, William G., Lt. Col., Preas Clinic
Provost, Edwin K., Major, 1101 19th
Rhea, Samuel D., Capt., 2504 Var
Roach, Donald R., Capt., 314 N. Hn
Shull, James E., Capt., 410 Love St.,

PHYSICIANS SEPARATED FROM SERVICE

Tennessee—Continued

Taylor, Claud H., Capt., 1303 N. Ocoee St., Cleveland.
Vinsant, Lowell E., Capt., Knoxville G.H., Knoxville.
Wilson, Frank E., Lt. Col., 407 Dawson Pl., Knoxville.

Texas

Arnold, Hugh F., 1st Lt., Hemphill.
Bondurant, W. W. Jr., Lt. Col., 430 College Blvd., San Antonio.
Bonin, Wilfred Patrick, Capt., 1601 W. Alabama, Houston.
Burditt, Bucky L., Capt., 3301 Junius, Dallas.
Bussey, Charles D., Major, 813 Med. Arts Bldg., Dallas.
Carrigan, Thomas A., 1st Lt., Medical Arts Clinic, Brownwood.
Carrington, William L., Capt., 108 S. Canton St., Mexia.
Collins, Lawrence D., 1st Lt., 917 N. Haskell, Dallas.
Devereux, William P., Major, 4137 Druid Lane, Dallas.
Ducroz, James L., Capt., 5th & Spooner, Pasadena.
Dunlap, James H., Major, 3712 Lemmon Ave., Dallas.
Estes, Bates B., Capt., 3561 Bluebonnet, Corpus Christi.
Faber, Edwin G., Col., 407 W. Shaw St., Tyler.
Fisher, Rowan E., Capt., Baylor Hosp., Dallas.
Fisher, William C. III, Capt., 3214 Avenue P, Galveston.
Frachtman, H. Julian, Col., 2300 Caroline St., Houston.
Gard, Delmar Ray, Major, 409 14th St., Galveston.
Gibson, Norman T., Capt., PO Box 546, Robstown.
Handley, James J., Major, 3604 Washington St., Greenville.
Hargis, William H., Jr., Lt. Col., 231 Inslee, San Antonio.
Harrell, Frederick S., Lt. Col., 709 W. Elm, Olney.
Hatfield, Haskell D., Lt. Col., Box 56, Baytown.
Haugen, Ingvald J., Major, 1504 Jackson St., Amarillo.
Hayes, Lindley O., Capt., Denton.
Hewatt, John W., Major, 1316 Annis St., Ft. Worth.
Hosen, Harris, Capt., Port Arthur.
Hunter, Richard O., Capt., W. Clarke St., Bartlett.
Klein, James C., Capt., 421 House St., Lufkin.
Kooken, Robert A., 1st Lt., Hamilton.
Ladue, Charles N., Capt., 4115 Myer Ave., Dallas.
Levy, Louis J., Major, 129 Williamsburg Lane, Ft. Worth.
Lewis, Everett B., Major, 1712 Banks, Houston.
Peters, Isadore D., Capt., 313 2d Nat. Bank Bldg., Houston.
Pickens, Jay W., Lt. Col., Cleburne.
Pomerantz, Robert B., Capt., 414 Navarro St., San Antonio.
Reynolds, Avery M., Capt., Med. Arts Clinic, DeLeon.
Seyler, Louis W., Major 1202½ Main St., Commerce.
Sievers, Walter A., Major, Plaza Hotel, Gonzales.
Smith, Burt B., Capt., 4430 Pease St., Houston.
Swinny, Boen, Lt. Col., 532 Med. Arts Bldg., San Antonio.
Thomas, Clifford S., Capt., Box 876, Tahoka.
Walker, Marcellus A. Jr., Lt. Col., 1st Nat. Bank Bldg., Paris.
Webb, Robert W., Capt., 614 Med. Arts Bldg., Dallas.
Wheeler, M. S., Lt. Col., 1922 W. Gramercy St., San Antonio.
Wheelis, Brewer D., Capt., 1704 S. 11th, Waco.
Willis, Raymond S., Major, 5611 E. Grand, Dallas.
Youngblood, John W., Capt., 912 E. Wells St., Stamford.

Utah

Pace, Garland H., Lt. Col., 1104 E. 1st South, Salt Lake City.
Rosengreen, George E., Capt., 3059 Ogden Ave., Ogden.

Virginia

Baker, James Porter, Lt. Col., 1305 Grove Ave., Richmond.
Bell, Robert Franklin, Major, 51 Corling St., Petersburg.
Berner, Benjamin W. Capt., Univ. of Va. Hosp., Charlotesville.
Butterworth, R. D., Capt., 3102 W. Grace St., Richmond.
Byrne, Kenneth N., Major, 106 W. Washington St., Lexington.
Dalton, Horace M., Major, University Hosp., Charlottesville.
Drash, Everett C., Lt. Col., 1503 Gordon Ave., Charlottesville.
Ferrell, Henry H. Jr., Capt., Goochland.
Fitz-Hugh, Glassell S., Major, Mason Lane, Charlottesville.
Grossmann, William, Major, 4633 Hanover Ave., Richmond.
Guerrant, John L., Capt., University Hospital, Charlottesville.
Hall, Gordon D., Capt., Dumbarton.
Hanna, Michael I., Capt., Fairlawn, Covington.
Holmboe, Harris S., Lt. Col., Univ. Hosp., Charlottesville.
Kagan, Benjamin M., Major, 1207 W. Franklin St., Richmond.
Katzen, Bernard, Capt., Lewis-Gale Hospital, Roanoke.
Laird, Edmund G., Major, c/o Rev. W. H. Laird, University.
Leavell, Byrd S., Major, Ivy Terrace, Charlottesville.
Liebman, Joseph, Major, Norton Clinic, Norton.
Lueders, William, Jr., Major, Ridgeview Rd., Staunton.
Morgan, Thomas A., Major, 500 Lee St., Franklin.
Murrell, Thomas W., Jr., Major, River Rd., Richmond.
Pepple, Allen W., Major, 501 Franklin St., Richmond.
Sisson, Harold E., Lt. Col., Gen. Del., Haynesville.
Smith, Charles D., Lt. Col., 2802 DuPont Circle, Richmond.
Sutherland, Joshua P., Capt., Haysi.

Virginia—Continued

Terry, William P., Major, Charlotte Court House.
Thomson, James L., Major, Virginia Med. Coll., Richmond.
Thornton, W. N., Jr., Capt., U. of Va. Hosp., Charlottesville.
Thrift, George N., Major, Medical Arts Bldg., Richmond.
Tucker, H. St. G., Jr., Capt., 6501 three Chopt Rd., Richmond.
Waddell, William E., Capt., 18 Gordon St., Lexington.

Washington

Aronson, Samuel F., Capt., 1628 31st Ave., Seattle.
Baker, James A., Capt., Medical Bldg., Hoquiam.
Bassett, Louis H., Major, Rt. 1, Shelton.
Carlson, Carroll C., Capt., Med. Arts Bldg., Tacoma.
Clark, John A., Major, Route 7, Box 339, Seattle.
Dumouchel, Murray L., Capt., 104 14th St., Raymond.
Gill, Ronald M., Major, Mason City Hospital, Mason City.
Jacobsen, Richard W., Major, 1831 23d Ave., N., Seattle.
King, William V., Major, Burlington.
Kohl, Gerald C., Major, Sumner.
Lemere, Frederick, Lt. Col., 2339 Perkins Lane, Seattle.
Martin, John K., Lt. Col., 504 McGilvra Blvd., Seattle.
Meeske, Frederick L., Major, 2020 S. Adams St., Spokane.
Minthron, Herbert H., Capt., 1608 25th Ave., Longview.
Murphy, Norman W., Capt., 4516 E. 38th St., Seattle.
Nawrocki, Walter E., Capt., Cle Elum.
Schultz, Milton J., Capt., 310 2d Ave., North Renton.
Taylor, Ralph L., Major, 1155 State St., Bellingham.
Wagner, Clyde L., Major, 4128 12th Ave. N.E., Seattle.

West Virginia

Bobes, Solomon S., Lt. Col., 2711 Eoff St., Wheeling.
Brannan, Dorsey, Major, 209 S. Walnut St., Morgantown.
Cardey, Norman L., Capt., Winona.
Cook, Joseph R., Major, 1139 4th Ave., Huntington.
Dickerson, Leon A., Major, Scarbro.
Edmondson, Richard E., Capt., Suncrest, Morgantown.
Glassman, Dan, Capt., Morgantown.
Haley, John B., Capt., 304- 20th St., S. E., Charleston.
Jarrell, Cecil A., Capt., 1503½ W. Washington St., Charleston.
Justice, Edward L., Major, Weirway, Hollidays Cove.
Laslie, James C., Major, 907 Edgewood Ave., Charleston.
McNinch, Eugene R., Capt., Weirton.
Myers, Elmer E., Capt., Philippi.
Nestmann, Ralph H., Capt., 118 N. 18th St., Wheeling.
Nutter, Phosa D., Major, Russellville.
Ralston, James G., Major, 303 Concord St., Clarksburg.
Richmond, Bill B., 1st Lt., 312 N. Kanawha St., Beckley.
Richmond, William F., Capt., 312 N. Kanawha St., Beckley.
Sleeth, Clark K., Capt., 104 Maple Ave., Morgantown.
Smith, Claude B., Major, 65 N. Abney Circle, Charleston.
Smith, Darwin E., Capt., Box 453, Williamson.
Thornhill, George T., Jr., Capt., Bland Rd., Bluefield.
Taylor, Isaiah E., Capt., 312 W. 10th Ave., Huntington.

Wisconsin

Falk, Victor S., Capt., 1862 Mountain Ave., Wauwatosa.
Feurig, James S., Capt., Milwaukee Co. Hosp., Wauwatosa.
Guzzetta, Marcus M., Major, Brookfield.
Hannan, Kenneth D. L., Capt., Prairie du Sac.
Kammer, Walter F., Major, New Glarus.
Kidder, Earle E., Major, 703 Clark St., Stevens Point.
Leeb, Harry, Major, 2423 N. 44th St., Milwaukee.
Leede, William E., Major, State of Wisconsin G. H., Madison.
Lochman, David J., Capt., 2705 N. 41st St., Milwaukee.
Randolph, Robert C., Capt., 915 N. 8th St., Manitowoc.
Reinardy, Arthyr L., 1st Lt., Main St., Union Grove.
Savage, George F., 1st Lt., 3922 N. Farwell Ave., Milwaukee.
Schuler, William H., Capt., PO Box 90, Fennimore.
Seastone, Charles V., Capt., 3414 Circle Close, Madison.
Sprague, John T., Capt., 32 Paget Rd., Madison.
Wolf, Alfred H., 1st Lt., 1902 State St., LaCrosse.

Wyoming

Allison, Lester F., Capt., Greybull.
Engelman, Alwyn A., Capt., Basin.

Hawaii

Chung-Hoon, Edwin K., Major., 282 N. Kukui St., Honolulu.
Cowan, Thomas W., Major, P. O. Box 93, Kahului, Maui.

Puerto Rico

Calderon, Aureo, Capt., Barceloneta.
Garcia, Leopoldo, Major, Central Aguirre Sugar Co., Aguirre.
Passalacqua, L. A., Lt. Col., P. O. Box 1848, Alahambra, Ponce.
Pou, Jaime F., Capt., Sagrado Corazon, Santurce.

ORGANIZATION SECTION

PRESS COMMENT ON COMPULSORY SICKNESS INSURANCE

After President Truman sent his message on health to the Congress and the Wagner-Murray-Dingell bills were introduced, newspapers throughout the nation commented principally on the controversial compulsory sickness insurance feature. A majority of editors were opposed to extension of federal control over medical practice. Many considered the proposal merely a first step toward state socialism.

The Shreveport (La.) *Times* said, for instance:

> Actually, the danger rests not in adhering to the present system but in venturing to experiment with Wagner's socialism. It is in the latter direction that the hazards are found, the grave risk that, in destroying incentive for progress in medicine, this progress will be ended.
>
> No one contends that the present system is perfect. But no one can say honestly that it is not moving toward perfection, as rapidly as movement can be made safely in such a complex field, involving the lives and welfare of millions of Americans.

And then the Shreveport *Times,* after quoting almost wholly the editorial from THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of December 1, concluded:

> Regardless of whether *The Journal of the A. M. A.* is right in every detail of its editorial comment, it is quite evident that if federalized compulsory sickness insurance is not socialization it is a full step toward it; and socialization of the medical profession, in whole or in part, would be exactly the step the Washington theorizers would like to take toward socialization in far broader fields.

Many newspapers were highly complimentary to the quality of medical care available in the United States. The Kansas City (Mo.) *Times,* after quoting largely from THE JOURNAL editorial of December 1, concluded regarding the application of compulsory sickness insurance to America:

> Its use in America is a question entirely too big for any hasty decision. The real question is whether it would not be far better to continue and further improve a medical system that has given this country health standards superior to those in any country that has adopted the compulsory plan with all its threatened regimentation and political control.

The Grand Rapids (Mich.) *Press* said:

> One might concede the need for federal participation in the medical and hospital field were it not for one thing—and that is that nationally we have steadily been making notable progress in the extension of health services without the intervention of the government. On the other hand, there is no assurance that the quality or scope of medical care would be greatly advanced under any federally supervised program. We do know, however, that such a program would be expensive, that it would compete with existing institutions and that it would bring virtual regimentation to a field where thousands of delicate problems depend for their solution on individual and confidential relationships.

The Fillmore (Neb.) *Chronicle* commented:

> The medical profession cannot be accused of being blind to the public interest. It has lifted the health standards of this nation higher than in any "socialized" nation. Its opinions should receive the most careful consideration.

The Baltimore *Sun* defended the quality of medical service generally available in the United States and described some of the many plans that have been developed to meet voluntarily the costs of medical care by prepayment insurance. It concluded:

> In these varied programs is found striking evidence of the widespread consciousness of the need for better medical care looking to the ultimate goal of adequate care for all. Some of the programs may fail, for this is a typical American approach to a problem by the trial-and-error method. But where one succeeds other communities will be prompt to adapt it to their needs. Whatever may come out of it, we may be sure that health care will be far better than any we have known before.
>
> Should this movement be ignored and discarded before we learn what it can do? Should we abandon this richly varied experimental approach for a set of alluring blueprints? This is what the advocates of a comprehensive scheme of tax-supported medical care, centrally administered by the federal government, are asking us to do. They are asking the country to throw away a system of medical care which despite many defects is fundamentally sound, and which is subject to constant improvement as experience points the way, for an entire new and untried plan.

As might be expected, the Chicago *Sun* in a number of editorials came out strongly for compulsory sickness insurance. Indeed it was certain that compulsory sickness insurance would be bound to prevail, saying:

> It can be asserted with utmost confidence that some such system of medical care will be realized in this country at a not too distant date. Complacency about national health has been shattered by the shocking revelation of widespread unfitness among draftees and servicemen. Thousands of families have experienced the financial catastrophe of sudden illness which might have been eased or avoided by prepayment on insurance principles. The benefits of adequate care have been brought home to many young men and women who got such care for the first time while in service. The tide of public demand for better health will grow and swell until it can no longer be resisted.
>
> Thus the real question before the medical profession is whether a national health program shall be put into effect with their aid and advice, or against their stubborn opposition. There may be legitimate differences of opinion on mechanics, but the principle of spreading the cost of medical care is here to stay. An enlightened medical profession will throw off the restraints of a misguided leadership and join the people in this great effort to broaden the base of national health.

In another editorial it urged that the medical care program be paid for principally from general taxes, not from payroll taxes, because it said:

> Payroll taxes clip mass purchasing power at its source, and it is essential to keep purchasing power high. If the nation has a stake in national health, as it does, then part of the burden can most appropriately be borne by general taxes based on ability to pay, rather than by payroll deductions, which, like sales taxes, fall most heavily on the low incomes.

Finally, it attacked the proposal that voluntary plans developed on a nonprofit basis in the individual states meet the situation, concluding:

> But the strongest point against the doctors' "plan" is that it will not accomplish what the people demand of medical insurance—an equitable spreading of medical costs among sick and well, rich and poor. Voluntary insurance would be open, as at present, only to those who can afford it and have the foresight to buy it. Low-income families would be excluded, as they are now; and so would millions of borderline families whose margin between income and outgo is so thin that medical expenses are never met until illness strikes.
>
> By putting forth their "alternative," the doctors admit the need for basic change in the economics of medical care. But by refusing to face the issues they fail to meet the need.

The Chicago *Daily News* said:

> The question is: what would it actually do; what would it actually cost; is it worth what it would cost; can we afford what it would cost, and what would its secondary effects be on medical practice and human welfare?

And then it said:

> Resentment of wage earners against the "deducts" is part of the troubled national psychology at this time. Workers tend to think of their wages as the amount that's left after the deductions. They often object to counting bonds, so readily cashable that they are the equivalent of cash, as part of take-home pay.
>
> If anything like Mr. Truman's plan is adopted, labor will demand wage increases to make up the cost.

Many editors felt that the President was apparently unaware of the relationship between compulsory sickness insurance and socialization of medicine. The New York *Sun* felt that the President should have studied more carefully the extent to which his proposal represented socialized medicine. It said:

> It will seem to many persons that President Truman has not gone far enough in testing this plan for marks of socialized medicine. It is true that physicians would not be employees of the federal government, but the intervention of Washington at every stage between the first sneeze and the last gasp would be so constant as to suggest state-dominated medicine, at the very least. The federal government would have complete control over collection and distribution of funds; it would have a corresponding say in fixing various standards to be met by communities or individuals. If this did not lead to socialized medicine, it would clearly result in firm establishment of federal control over a large area of medical practice.

The New York *Evening Post,* however, heartily endorses compulsory sickness insurance, assuring the doctors that it would give them more income and that it would not affect the personal relationship between physician and patient. The New York *Post* concluded:

> The President has proposed a democratic solution to a pressing national problem. If the entrenched minority of doctors, centering around the Fishbein clique in the American Medical Association, succeed in killing it by their screams against "socialized medicine," they may finally get just that.

The Nashville (Tenn.) *Banner* said:

> Leaders in the medical profession know the dangers invited by political control of medicine, however glibly its advocates dress it in words of innocence. . . . It is hardly likely that thinking American citizens will prefer political voices to authoritative medical voices on a subject involving life and health. It is inconceivable that thinking citizens will permit subjection of Medicine to the principles of boondoggling or assign it to the arrogant, untender mercies of bureaucracy.

And the Mount Carmel (Ill.) *News* went directly to the issue, asking:

> "When the federal government forces a person to subscribe to a prepaid medical system sponsored by the government, is there any other name for it but 'state medicine'?" It continues, "In order to have your free choice you may have to pay your medical bill twice—once to the government for a doctor you don't want and again to the doctor of your actual choice."

The Omaha *World Herald*, among others, feared the political domination of medicine. It said:

> As a matter of fact Dr. Washington is something of a quack. His rates are the highest in the world, but his patients often come down with palsy and creeping paralysis. And once they get into his clutches they are likely to stay there until the undertaker comes.
>
> Let it be hoped, even at this late hour, that the American medical profession will be spared such a fate. For despite anything its detractors may say, American medicine is the best in the world. Nowhere in the socialist or totalitarian lands is there anything to match it.

The Columbus (Ohio) *Evening Dispatch*, after calling attention to a strike of dentists in Great Britain against the health insurance system, says:

> For "dentists" read "doctors"; for "Surrey, Sussex, Kent and Hampshire" read "Ohio, Pennsylvania, New York and New Hampshire"; for "false teeth" read "appendectomies" or any common operation—and for the figures given substitute appropriate amounts.
>
> This shows what could happen in the United States with the practice of medicine regimented by political controls. Bureaucracy and human nature are the same over here as in the British Isles. A few words such as this one to the wise—meaning the American voter—should be sufficient.

Discussing the President's message, the New York *Sun* found it confused and said that the main trouble seems to be "anxiety to please as many persons as possible and to offend as few as possible." It continues:

> So, also, in his message on universal military training the President advocated it for men of certain ages, but didn't want these young men enrolled in the armed services—as neat a balancing of water on both shoulders as anybody could imagine. Likewise he has come out in favor of universal medical insurance—to be paid for largely by taxation—but says he opposed socialized medicine!

Apparently some editors were also confused. The Laguna Beach (Calif.) *South Coast News* has

> "always felt that the public health is a legitimate field for state action, and belongs in the same category as public education, fire and police protection, and other simple public utilities."

It offers the suggestion that local committees composed of both member and nonmember doctors set the rates for practice and that in each area

> "every registered M.D. may participate in a legal election to choose a committee to define standards for granting federal funds."

The *Wall Street Journal* too felt that the issue needed clarification. It said:

> Throughout the message the President asserts, not without reason, that his recommendations are based upon the insurance principle of pooled risks and pooled funds with which to cope with individual disasters and disabilities. He states, too, his conviction that his nationwide system of medical services "must be highly decentralized in administration." If one recalls the prolonged and at times bitter controversies which the age-pension reserve fund and state versus federal control of unemployment compensation have provoked, one must gain some idea of the greater struggles which a "required prepayment" system of providing such intimate relationships as medical, dental and nursing care must go through before it is established by federal law.
>
> We see little chance that Congress, despite the energy and intelligence with which its committees carry on their inquiries, can prepare itself to legislate wisely on the complex group of questions which Mr. Truman's latest message puts before it. A commission of the right sort could do much invaluable spade-work.

Then also the Asheville (N. C.) *Citizen* says "the Truman proposal is imperfect but it is no monster. It merits serious discussion, not cheap abuse." It further says:

> The American people, the *Citizen* ventures to believe, do not want "socialized medicine" in the correct definition of the phrase. But they are not satisfied with the present system. They wish to see competent medical attention brought within the economic reach of all the people.

The Washington (D. C.) *Post* praised highly the President's message to Congress demanding a national health program and concluded:

> There is nothing un-American about meeting the problem of ill health through social action. What the President has proposed is simply an orderly method of meeting the burden of medical care through prepayment and a reasonable distribution of that burden so that medical care can be genuinely available to all. He may be off the mark in detail, but he is right in principle and policy. Health, like education, must be the concern of our whole society, and we trust that the subject will receive the constructive attention that the presidential message deserves.

The Washington (D. C.) *News* indicated that none of the proposals made by Mr. Truman are new and that it is about time that there be a real hearing on the subject. Then it said:

> And we aren't trying to be facetious when we add that consideration of these and all other proposals involving government spending should take due account of the health of the federal treasury. Some sort of insurance against a continued decline into deeper and deeper debt is urgently needed there.

The New York *Times* indicated the support which the President's health program may anticipate as follows:

> The President may count on much support. Behind him stand the AFL and the CIO, both of which have endorsed not only compulsory health insurance but the payroll deductions and contributions by employers called for by the Wagner-Murray-Dingell bill; the American Public Health Association, which has a program much like his; the philanthropic organizations as a whole; some associations of liberal physicians, and powerful unions of farmers. Public health officers, too, will support the President, because his plan provides hope that at last they will be able to extend their activities to whole counties where there have been few physicians and too often no hospitals and laboratories at all.

The *Times* then emphasized the immense costs and the great size of the national debt.

The *Farmers Guide* (Huntington, Ind.) said that the American people "are exceedingly weary of compulsory this and compulsory that. They would like nothing better than to be permitted to live at least part of their lives unbossed by federal or union bureaucracies." The *Farmers Guide* continued:

> If we can be compelled to set aside a part of our earnings for medical care that we may or may not need, why should we not be compelled to set aside another percentage to insure against dandruff or baldness or graying hair?
>
> The President now appears as an advocate of compulsory military training, of compulsory medical insurance, compulsory price fixing, compulsory union membership and a host of other compulsions.
>
> Why not include matrimony, paternity and membership in either the Democratic or Communist party?

Finally the Alexandria (La.) *Daily Town Talk* offered a calm summary of the situation:

> Americans do not take well to compulsory anything, except in grave national emergencies, and then they rapidly return to voluntary action as soon as the crisis has passed.
>
> Medicine now stands at a sort of crossroads. Behind it is a long, stately avenue that is dotted with monuments that represent the noble achievements of the profession under the American system of free enterprise. Across that road there seems to stand a rather impenetrable road block of social change. The road to the left is marked "Compulsory Sickness Insurance," and from it there runs a collateral road that is even darker, called "State Medicine." On the other hand, we can turn down the road to the right, which leads us into that realm of voluntary social security occupied by the various voluntary prepayment plans that have been developed for the administration of medical care. From this road extends also a collateral road of continued individual private practice of medicine.

Coming Medical Meetings

Annual Congress on Medical Education and Licensure, Chicago, Feb. 11-12. Dr. Victor Johnson, 535 North Dearborn St., Chicago, Secretary.

Conference of State Secretaries and Editors, Chicago, Feb. 8-9. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Association of Pathologists and Bacteriologists, Chicago, March 8-9. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Orthopsychiatric Association, New York, Feb. 14-16. Dr. Nina Ridenour, 1790 Broadway, Room 916, New York 19, Secretary.

American Physiological Society, Atlantic City, March 11-15. Dr. Wallace O. Fenn, 260 Crittenden Blvd., Rochester 7, New York, Secretary.

American Society for Experimental Pathology, Atlantic City, March 11-15. Dr. Harry P. Smith, 630 W. 168th St., New York 32, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, March 5-8. Dr. Warren W. Furey, 30 North Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 18-21. Dr. John G. Young, 1719 Pacific Avenue, Dallas 1, Director of Clinics.

Federation of American Societies for Experimental Biology, Atlantic City, March 11-15. Dr. D. R. Hooker, 19 West Chase Street, Baltimore 1, Secretary.

Medical Library Association, New Haven, Conn., March 25-27. Miss Frida Pliefke, 2000 Medical Arts Bldg., Minneapolis 2, Secretary.

Missouri State Medical Association, St. Louis, March 24-26. Dr. Ralph L. Thompson, 634 N. Grand Blvd., St. Louis 3, Secretary.

National Conference on Medical Service, Chicago, February 10. Dr. Cleon A. Nafe, 822 Hume-Mansur Bldg., Indianapolis 4, Secretary.

Southeastern Surgical Congress, Memphis, Tenn., March 11-13. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Georgia, Secretary.

Washington Letter

(*From a Special Correspondent*)

Jan. 28, 1946.

American Medical Association Accused of Misleading Public

Representative Biemiller, Democrat of Wisconsin, charged that the National Physicians' Committee had misrepresented the Wagner-Murray-Dingell bill to the public. He accused the American Medical Association of exerting pressure on Congress against compulsory health insurance and said that the organization was involved in a double deal in which it appeared to support voluntary health insurance while its "rear guard of expendables," the National Physicians' Committee, supplied "canned" advertisements to newspapers and inspired letters to Congress opposing federal health measures. Representative Biemiller appeared at a conference on a national program sponsored by the District of Columbia chapter of the Physicians Forum headed by Dr. A. T. Rand. Nelson Cruikshank, director of social insurance activities of the American Federation of Labor, also supported the Wagner-Murray-Dingell bill.

Admiral McIntire Writes on Health of Late President

Considerable attention was given here to the signed article in *Collier's* magazine by Vice Admiral Ross T. McIntire, personal physician to the late President Roosevelt, in which he said that the President had regained considerable lost weight and "every cause for anxiety seemed to have been lifted" before his sudden collapse and death last April. Just minutes before the President's collapse, he wrote, he had received an "optimistic" report on the President's health from Commander Howard Bruenn, one of the Navy's "fine internists," who was in personal charge of the President.

Hospital Signs Union Contract for Nonprofessional Workers

Emergency Hospital is the first hospital here to sign a union contract with nonprofessional employees, assuring wage increases up to $7.50 a week and ending a disagreement involving more than three years of litigation. The hospital's refusal to recognize the American Federation of Labor Building Service Employees Union almost resulted in a strike last July.

District Opposes Sharing Medical Center Costs

Commissioners of the District of Columbia have protested in a lengthy report to representative McMillan of the House District Committee against charging the capital for any portion of the proposed 1,500 bed hospital center. Commissioner John Russell Young states that District taxpayers are now paying about nine million dollars annually for the care of the sick.

Child Care Centers to Close February 28

Henry J. Sullivan of the Federal Works Agency has advised that after February 28 no federal funds will be available for child care centers in public buildings. Teachers and officers of child care centers are now endeavoring to arrange operation of the nursery schools on a cooperative basis.

Ninety Thousand Treated in Veterans Hospitals

The Veterans Administration has announced that the number of veterans receiving hospital treatment has passed 90,000 and revealed that progress is being made in recruiting more doctors and nurses under new regulations of the Department of Medicine and Surgery of the Veterans Administration.

Walter Reed Amputees Urge Artificial Limb Foundation

Amputees at Walter Reed Hospital have urged creation of a permanent foundation, financed primarily by private contributions, to aid the physically handicapped. They fear that artificial limb legislation will die as public sympathy wanes toward the nation's 14,000 war amputees. An editorial in the *Service Stripe*, weekly newspaper published by Walter Reed patients, criticized public apathy, which is claimed to have retarded artificial limb research during the past fifty years. A decision has not yet been made by Congress on government sponsored artificial limb research. The House Labor Committee subcommittee on aid to the physically handicapped first urged that such research be centered in the U. S. Public Health Service but later recommended that the Veterans Administration take over the job. The final decision is to speed up pending Congressional action on legislation affecting all government health services.

Typhus Expert Honored for Work in Europe

While the nation's capital launched a program to exterminate rats, 22 per cent of which are reported to be infested with typhus-carrying fleas, Dr. Leonard A. Scheele, senior surgeon of the U. S. Public Health Service, was awarded the Typhus Commission Medal for "exceptionally meritorious service" in preventing the spread of the disease in northwestern Europe during 1944 and 1945. Already 1 child in the capital has been found to be infected with typhus. The medal was presented to Dr. Scheele by Dr. Thomas Parran, surgeon general, in services at the National Institute of Health in Bethesda. The citation with the award was read by Brig. Gen. Stanhope Bayne-Jones, commission director.

Nationalized G. I. Universities Proposed

Educational officials here are studying the proposal made at a meeting of the National Education Association veteran education conference in Cleveland that "G. I. universities" should be set up if present colleges and universities fail to accommodate war veteran students. An estimated 750,000 are expected to enroll by next September. Dr. Alonzo G. Grace, Connecticut commissioner of education, suggests that the federal government "has a responsibility to take over training facilities, including army and navy camps, and establish college and university opportunities for youths." He suggests that nonservice youths attend in order that veterans may have first priority on established colleges.

General Bradley Makes Appointments to New Medical Board

Veterans Administrator Omar N. Bradley has announced the first appointments under the new law creating a department of medicine and surgery in the agency which is not controlled by civil service. The appointment of Major Gen. Paul R. Hawley as acting director was purely "technical," as he has been serving in this capacity. Dr. Robert Webb, veteran of four years' service in the South Pacific, was named chief psychiatrist in the Washington regional office.

Progress in Reorganization of Veterans Administration

High praise for the progress made in reorganization of the medical department of the Veterans Administration was made by Representative Edith Nourse Rogers of Massachusetts in a tribute to Veterans Administrator Omar N. Bradley and Acting Medical Director Paul R. Hawley. She warned that they will continue to need the help and cooperation of the medical profession and the public.

University Offers Intensive Medical Postgraduate Courses

A series of intensive courses in postgraduate subjects will be available to veterans beginning February 11, according to Dr. Walter A. Bloedorn, dean of George Washington University School of Medicine. A grant from the W. K. Kellogg Foundation enables eight courses to be scheduled within allowances of the G. I. Bill of Rights.

Meeting of Hospital Service Plan Commission

The quarterly meeting of the Hospital Service Plan Commission of the American Hospital Association has been held at the Hotel Statler. John R. Mannix, commission chairman and director of the Chicago Blue Cross Plan, presided, and in charge of arrangements was C. Rufus Rorem, commission director.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Social Security

H. R. 5116, introduced by Representative King, California, proposes to amend the Social Security Act to provide for payment for hospital, medical and health services to needy aged persons, to dependent children and to needy blind persons.

Commission for Physically Handicapped

Representative Sparkman, Alabama, has introduced H. R. 5206, to establish a Federal Commission for the Physically Handicapped. This commission, among other things, will be authorized to provide for medical, surgical and therapeutic treatments, the application of prosthetic or orthopedic appliances, hearing aids, eyeglasses and such other devices as may by their use enable physically handicapped persons to become proficient physically so as to be able to earn their own living, wholly or in part. The bill contains a title proposing an appropriation of $2,000,000 to the Public Health Service to be available for research, applied medicine and treatment, and necessary expenses to develop a cure for deafness. The bill indicates that additional titles will be added covering grants to the Public Health Service for clinics on the treatment of poliomyelitis and epilepsy.

Miscellaneous

S. J. Res. 128, introduced by Senator Murdock, Utah, proposes an appropriation of $500,000 to be used by the Administrator of Veterans' Affairs for the purpose of acquiring a site for, and building and equipping, a laboratory to be used in conducting scientific studies of artificial legs and appliances therefor.

Representative Lemke, North Dakota, proposes by H. J. Res. 298 that the veterans' hospital at Fargo, N. D., shall be known as the Clarence Theodore Hoverson Memorial Veterans' Hospital.

H. R. 5181, introduced by Representative Sumners, Texas, would authorize the use of the employees' compensation fund to furnish medical and hospital services to certain enrollees of the Civilian Conservation Corps.

H. R. 5193, introduced by Representative Lemke, North Dakota, proposes that no person shall be employed as an officer or employee of the United States as a pharmacist unless such person holds a degree in pharmacy based on not less than a two year college course in pharmacy or its equivalent.

STATE LEGISLATION

California

Bills Introduced.—A. C. R. 10-X proposes the adoption of a resolution to the effect that, if legislation is enacted establishing a medical school and center at the University of California at Los Angeles, the Board of Regents of the university give favorable consideration to the location of such institution in the San Fernando Valley. A. 88-X and S. 57-X propose to create a State Advisory Council on Hospital Facilities and to authorize the Department of Public Health to make a survey of existing public and private hospitals and health centers in the state, to evaluate the sufficiency of such hospitals and health centers to supply the necessary physical facilities for furnishing adequate hospital, clinic and similar services to the people of the state and to make recommendations for such additional facilities as may be necessary. S. 54-X proposes the appropriation of a sum of money to the California Polytechnic School to be used in part for the planting and cultivating of herbs and plants, the resins, gums and oils of which are used for medicinal purposes.

Bills Passed.—A. 35-X passed the assembly January 15. It proposes to authorize the appropriation to the Regents of the University of California of the sum of seven million dollars for the purpose of establishing, equipping and maintaining a medical school and center as a unit in the University of California at Los Angeles. A. 37-A passed the assembly January 17. It proposes to amend the business and professions code so as to increase the annual tax and registration fees of osteopaths from $5 to $10 for residents and from $2 to $10 for nonresidents.

A. 61-A passed the assembly January 17. It proposes an appropriation of four million dollars to the Regents of the University of California for the purpose of additional construction, improvements and equipment for the medical center of the University of California at San Francisco.

Massachusetts

Bills Introduced.—H. 301, to amend the medical practice act, proposes that all persons who matriculated at the Middlesex University School of Medicine and were duly graduated therefrom on July 24, 1944 and subsequently served as an intern in a hospital shall be eligible for examination and registration as qualified physicians. H. 767 proposes that all veterans of World Wars I and II, their wives and their children under 18 years, shall be given full hospital and medical care. H. 601, to amend the medical practice act, proposes that a state board of osteopathic examination and registration be established for the purpose of examining and registering persons desiring to practice osteopathy. H. 800, to amend the law relating to the practice of physicians in hospitals, proposes that no person registered as a qualified physician shall be refused the right to practice in a hospital supported in whole or in part by contributions from the commonwealth or any hospital endowed for charitable purposes and not operated for profit because said physician is not a member of any particular medical association, society or organization. S. 189, to amend the medical practice act, proposes that all physicians, after the removal of any limb or organ, whether or not written or verbal permission has been given by the patient and whether or not as the result of an accident the patient is unconscious and no near relative can be reached quickly, be required to deliver to the patient a written statement setting forth the nature of the operation which he performed and his reasons for considering such operation necessary. S. 259, to amend the law relating to the furnishing of medical care to recipients of old age assistance, proposes that no board of public welfare or old age assistance bureau shall set a rate of payment for medical services to recipients of old age assistance that is less than the accepted rate for medical services in the community in which the recipient lives, unless the physician is willing to accept a payment for his services less than the accepted rate. S. 263, to amend the medical practice act, proposes that any person who graduated from the Middlesex school of medicine on or before Dec. 31, 1945 and who subsequently served as intern in a hospital shall be eligible for examination and registration as a qualified physician. S. 264 proposes that no person shall be required to submit to vaccination or inoculation of any kind against his will as a condition precedent to admission to or attendance at any public school and that no certificate of vaccination or nonvaccination shall be required as an entrance requirement to attendance by any child in the public schools of the state. S. 386 proposes that the department of mental health be authorized to select and acquire a site for the erection of a state hospital for the treatment and study of persons who have degenerated in health through the excessive use of intoxicating liquors.

New York

Bills Introduced.—A. 94, to amend the education law, proposes the establishment of two medical colleges to be known as New York State Victory Medical College I and New York State Victory Medical College II, one to be located in New York City and one to be located in upstate New York. Each of such colleges shall be initially equipped to provide courses of instruction for four thousand pupils. A. 186, to amend the education law, proposes the establishment of a New York State Victory Medical College, to be initially equipped to provide courses of instruction for four thousand pupils. A. 294, to amend the laws relating to the construction of municipal hospitals, proposes that the city of New York be authorized to select and acquire a site and to erect and equip a public general hospital and dispensary to meet the present inadequate hospital facilities now existing within the city. S. 171, to amend the education law, proposes the establishment of a medical college to be known as New York State Medical College, initially equipped to provide courses of instruction for four thousand pupils. S. 265 and A. 245, to amend the education law, propose that the health service to be rendered to pupils in public schools shall include the necessary facilities to afford adequate physical examinations, including x-raying of the chest of all pupils annually. S. 268 and A. 215, to amend the public health law, propose the enactment of a law providing for a statewide system of health insurance. S. 283 and A. 123 propose that no professional schools shall deny an applicant admission thereto because of race, creed, color or national origin. S. 285 and A. 89, to amend the education law, propose the establishment of an institution to be known as New York State University, which shall include, among other things, a school of medicine. S. 332, to amend the civil practice act, proposes the authorization of the introduction in evidence in a law suit of hospital bills bearing a certification by the superintendent or head of the hospital that the bill is true and correct and that the amount charged therefor is the fair and reasonable value of the services rendered.

Virginia

Bill Introduced.—S. 21 proposes that the state board of health be authorized to initiate and administer a program of hospital treatment and care for indigent persons residing in the state.

CONFERENCE OF STATE SECRETARIES AND EDITORS

The Annuel Conference of Secretaries and Editors of Constituent State Medical Associations will be held in the American Medical Association building in Chicago February 8 and 9. The program will be as follows:

FRIDAY, FEBRUARY 8—10 A. M.

Call to Order. R. L. Sensenich, *Chairman of the Board of Trustees* of the American Medical Association.

Current Status of Medical Legislation. J. W. Holloway Jr., Director, Bureau of Legal Medicine and Legislation.

Discussion: Joseph S. Lawrence, Director, Washington Office of the Council on Medical Service and Public Relations.

Plans for Medical Care in Rural Areas. F. S. Crockett, Chairman, Committee on Rural Medical Service.

Discussion: L. W. Larson, Secretary, North Dakota State Medical Association.

12:30 P. M. Luncheon.

FRIDAY, FEBRUARY 8—2 P. M.

Address. Harrison H. Shoulders, President-Elect of the American Medical Association.

State Plans for Aid to Returning Medical Veterans. George F. Lull, Associate General Manager of the American Medical Association.

Discussion: Victor Johnson, Secretary of the Council on Medical Education and Hospitals, and Robert C. Ayers, Director, War Property Distribution of the Federal Security Administration.

Plan for Furnishing Medical Care to Veterans. Col. James C. Harding, Veterans Administration.

Discussion: L. Fernald Foster, Secretary, Michigan State Medical Society.

FRIDAY, FEBRUARY 8—6:30 P. M.

Dinner Meeting of Editors of State Medical Journals
Palmer House, Crystal Room

Presiding: Lyman W. Mason, Editor, *Rocky Mountain Medical Journal.*

Clinic on Editorial Problems. Henry A. Davidson, Editor, *Journal of the Medical Society of New Jersey.*

SATURDAY, FEBRUARY 9—9:30 A. M.

Public Relations of American Medicine. Morris Fishbein, Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Discussion: John Hunton, Executive Secretary, California Medical Association, and Edward Stegen, National Physicians' Comittee for the Extension of Medical Care.

Progress Toward a National Medical Prepayment Plan. Jay Ketchum, Executive Vice President, Michigan Medical Service.

Discussion: Edward J. McCormick, Chairman, and A. W. Adson, Member, Council on Medical Service and Public Relations.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education and public health.)

CALIFORNIA

First Evans Lecture.—Dr. Wesley W. Spink, associate professor of medicine, University of Minnesota Medical School, Minneapolis, gave the first annual Newton G. Evans Lecture in bacteriology and pathology at the College of Medical Evangelists, Loma-Linda-Los Angeles, November 29. His subject was "Brucellosis: Diagnostic and Therapeutic Consideration." Dr. Evans, for whom the lecture was named, died December 19 in the White Memorial Hospital. He had been professor of pathology and director of research at the College of Medical Evangelists and formerly served as president of the college and dean of the medical school.

New Department of Medical Physics.—A department of medical physics has been established within the department of physics on the Berkeley campus of the University of California Medical School, to apply the products of the cyclotron to the study of health and disease and for human betterment. Close liaison will be maintained with the medical school and the radiation laboratory, as well as with the department of physics. Because of the war, many men of the science departments still are on leave. However, work in the new department, headed by Dr. John H. Lawrence, will go forward as rapidly as possible. At the present time the staff, in addition to Dr. Lawrence, consists of Dr. Joseph G. Hamilton, assistant professor of medical physics and assistant professor of medicine and radiology, Hardin B. Jones, Ph.D. (physiology) and Cornelius A. Tobias, Ph.D. (physics). The department will be housed in the Donner Laboratory for Medical Physics, a gift of the International Cancer Research Foundation, of which William H. Donner, Philadelphia, is president. It is situated near Crocker Radiation Laboratory, which was built to house the 60 inch cyclotron and is now devoted to medical physics for the most part. Much had been accomplished before the war with radioactive isotopes, such as carbon in the study of photosynthesis, sodium in numerous investigations and phosphorus in the study of plant growth and human health and disease, particularly polycythemia vera, for which it has become an established treatment. A cooperative program is being planned with the university's medical school in San Francisco which Dr. Lawrence believes will lead to important advances in the understanding of the human body in health and disease and to improvements in therapy. Neutron therapy for the treatment of cancer is to be continued and extended. The fall semester, which began in October 1945, marked the offering of one upper-division course entitled medical physics. This course gives an introduction to nuclear and radiation physics, electronics, biologic effects of radiations and an introduction to the tracer technic. Four additional upper-division courses are planned for the spring semester: an introduction to medical physics, photobiology, laboratory courses in medical physics, and medical physical aspects of aviation. Two degrees are planned, a Ph.D. in medical physics for students who have earned the M.D. and a Ph.D. in biophysics for others. These degrees will require the completion of a minimum number of courses in the fields of physics, chemistry, physiology, mathematics and medicine, to give a well balanced basic medical physics background, and completion of a certain amount of original research in the laboratory.

DISTRICT OF COLUMBIA

New Mental Hygiene Head.—Dr. Leopold E. Wexberg, New Orleans, has been appointed chief of the bureau of mental hygiene of the District health department. Dr. Wexberg came to the United States in 1933 after nineteen years of practice in Vienna. He succeeds Dr. John F. Owen, who resigned (The Journal, June 23, 1945, p. 604).

Stephen McDonough Goes to Minnesota.—Stephen J. McDonough Jr., Washington science editor of the Associated Press from 1933 to 1942, when he entered military service, has joined the staff of *Modern Medicine*, Minneapolis. Until his recent discharge as major in the medical administrative corps, Mr. McDonough served as chief of the planning board, technical information division, Office of the Surgeon General of the Army, and as a member of the committee on information of the division of medical sciences of the National Research Council. Mr. McDonough is a former secretary of the National Association of Science Writers.

ILLINOIS

Changes in Health Personnel.—Dr. James W. Chapman, Charlevoix, Mich., has been appointed director of the DuPage County Health Department, with headquarters in Villa Park, to succeed Dr. Sidney I. Franklin, it is reported.——Dr. Walter C. Wilhelmj, East St. Louis, has been appointed acting director of the East Side Health District, succeeding the late Dr. Robert C. Farrier.——Dr. Emil J. Bunata, who was recently released from military service, has returned to his position as health officer of Berwyn, the position he held when he entered military service in 1942.

Chicago

Health Educational Program.—The Mount Sinai Hospital on January 22 opened a series of meetings for the general public to disseminate information on how to maintain and enjoy good health. The meetings are to be conducted as forums where opportunities will be given to the public to ask questions and will be followed by a social period.

James Case Chosen President of Battle Creek Sanitarium.—Dr. James T. Case was elected president of the new board of the Battle Creek (Mich.) Sanitarium. The sanitarium and the Seventh Day Adventists General Conference recently settled a two year litigation with a compromise agreement. The operation of the Battle Creek and Benevolent Association is one of the results of the new setup (The Journal, Dec. 1, 1945, p. 971).

Dinner for Returning Faculty Members.—The faculty of medicine of Northwestern University Medical School, under the auspices of the medical division of the Alumni Association, will hold a dinner February 7 at the Furniture Club of America, 666 Lake Shore Drive. The event is in honor of members of the faculty who have served in the armed forces and will begin with cocktails at 5 p. m. and dinner at 7. Two hundred and fifteen members of the faculty served in various military divisions, most of whom have returned. Any member who has not received an invitation is urged to communicate with the Medical Alumni Office, 303 East Chicago Avenue. The telephone number is Superior 4500, extension 212.

Branch Meetings.—The North Side Branch of the Chicago Medical Society will be addressed February 7 by Dr. Max M. Peet, professor of neurologic surgery, University of Michigan Medical School, Ann Arbor. His subject will be "Surgical Treatment of Hypertension and Peripheral Vascular Disease." The North Shore Branch will hold a meeting at the Edgewater Beach Hotel, February 5. "Do's and Don'ts" will be discussed by the following in the respective subjects:

Dr. Harry Culver, Acute Urinary Retention.
Dr. Ovid O. Meyer, Madison, Wis., Relation to Anticoagulants.
Dr. Harry A. Oberhelman, "Acute" Abdomen.
Dr. Arthur R. Colwell, Evanston, Ill., Diabetic Coma.
Dr. Erwin R. Schmidt, Madison, Wis., Acute Intestinal Obstruction.

LOUISIANA

Personal.—Dr. Boni J. De Laureal was recently elected treasurer of the Orleans Parish Medical Society to succeed Dr. Paul G. Lacroix, who resigned because of ill health, both of New Orleans.

Grant for Hypertension.—The Winthrop Chemical Company has made a grant of $2,500 to the Alton Ochsner Medical Foundation for research in hypertension. The chemical phases of this problem are directed by Otto Schales, D.Sc., New Orleans.

Orientation Course in Allergy.—The American Academy of Allergy, under the sponsorship of the Louisiana State University School of Medicine, will give a five day orientation course in allergy in New Orleans, March 8-12, with headquarters at the Roosevelt Hotel. Inquiries should be addressed to the Dean's Office, Louisiana State University School of Medicine, 1542 Tulane Avenue, New Orleans 13.

MARYLAND

Anesthesiology Service Launched at University Hospital.—On January 1 the regular course of instruction in anesthesiology of the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, was augmented by the establishment of a separate service of anesthesiology in the University Hospital, the principal clinical teaching unit of the school of medicine.

DeLamar Lecture in Hygiene.—Dr. Willard F. Machle, formerly associate director, Kettering Research Institute, Cincinnati, and recently director, Armored Medical Research Laboratory, Fort Knox, Ky., gave the DeLamar Lecture in Hygiene at the Johns Hopkins University School of Hygiene and Public Health, Baltimore, January 8, on "Interrelationship Between Man, His Environment and Tasks."

Personal.—John E. Ransom has resigned as assistant director of Johns Hopkins Hospital, Baltimore, to become director of a survey of state hospitals in Georgia. The survey is under the auspices of the Georgia State Health Department and will involve the study of existing hospital facilities in Georgia for proposed expansion. Mr. Ransom is a former superintendent of the Toledo Hospital, Toledo, Ohio, and in 1941 served as executive secretary of the Hospital Council of Greater New York, according to the *Modern Hospital.*——R. Dale Smith, head of the department of biology at Gonzaga University, Spokane, Wash., has accepted the position of assistant professor with the department of anatomy of the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, beginning January 1, according to Dr. Robert U. Patterson.

MICHIGAN

Course in Occupational Health Postponed.—A twelve week orientation course in occupational health and medicine offered by the School of Occupational Health, Wayne University, Detroit, scheduled to begin March 4, has been canceled on account of the existing situation, which has closed so many industrial plants in which practical instruction was planned. A course will be offered at a later date to be announced when conditions permit.

Review Course for Physicians.—The University of Michigan Medical School, Ann Arbor, announces that review courses for returning medical officers and civilian physicians will be conducted at the university as follows: internal medicine, March 4-April 27; course for practitioners, April 29-June 22, and brief review courses in anatomy, internal medicine, allergy, cardiology, blood diseases, endocrinology and metabolism, therapeutics, gastroenterology, ophthalmology and otolaryngology, pediatrics and roentgenology in April, May and June. Requests for information should be addressed to Dr. Howard H. Cummings, chairman, Department of Postgraduate Medicine, University Hospital, Ann Arbor.

Change in Executive Administration.—A change in the executive committee of the University of Michigan Medical School, Ann Arbor, has been approved by the board of regents. Under the new plan the executive committee will consist of the dean of the medical school, the director of the University Hospital and four additional members of the executive faculty to be appointed by the board of regents on recommendation by the president of the university. The appointed members are to consist of a representative from each of two clinical departments and a representative from each of two preclinical departments. Previously there had been no provision for apportioning membership between the departments. The new plan had received approval of the medical school's executive committee and executive faculty before final approval was given by the board of regents.

MINNESOTA

New Professorship in Public Health.—The first permanently endowed professorship in the University of Minnesota Medical School, Minneapolis, was created recently as the Mayo Professorship in Public Health when the board of regents accepted endowment of that chair by the Mayo Properties Association. To pay the salary, which will not exceed $10,000, a gift of $150,000 was made to the university by the Mayo Properties Association, which specified that over and above the income from that sum the total will be made up from the income of the Mayo Foundation for Medical Education and Research. Dr. Harold S. Diehl, dean of medical sciences, said he thought appointment to the new chair would be made before July 1, when the next fiscal year begins. One other named professorship, the George Chase Christian professorship in cancer research, exists at the university but is not permanent, although it is still supported by gifts made when the Citizens Aid Society was liquidated. The school of public health was created in the medical school about two years ago when Dr. Diehl recommended that the then department of [illegible] the medical school, like the school of nursing. Dr. Gaylord W. Anderson has been head of the school from the first, although during the war he has been on leave as head of the division of medical intelligence in the Office of the Surgeon General, War Department. The Mayo Properties Association is the organization formed by the late Drs. Charles H. and William J. Mayo and their associates to hold and manage the assets of the Mayo Clinic. The Mayo Foundation for Medical Education and Research is an educational division of the University of Minnesota on the graduate level. It was first endowed with $2,000,000 in 1917, which sum was subsequently increased by $500,000 in 1934. It carries a broad program of graduate teaching, maintains laboratories and will now contribute to the new professorship. The school of public health was described by Dr. Diehl as one of six regional training centers in this country having as a principal function the training on the graduate level of doctors, engineers and nurses in public health matters to become specialists. For ten years past the school has had federal support of about $15,000 a year. Columbia, Harvard, Yale, Johns Hopkins and Michigan are other institutions which have such schools. Minnesota was designated a regular public health training center after the state health officers of the North Central group of states expressed a desire to have the federal government take that action.

NEW YORK

James Perkins Named Deputy Health Commissioner.—Dr. James E. Perkins, Delmar, director of the division of communicable disease, New York State Department of Health, was on January 7 appointed deputy health commissioner, succeeding Dr. Paul B. Brooks, who retired January 1 (The Journal, January 19, p. 163). Dr. Hollis S. Ingraham, Kingston, was named acting director of the division of communicable disease. Dr. Perkins recently returned after several months in Italy as an officer in the U. S. Public Health Service.

Cerebral Palsy Group Backs Local Project.—The Cerebral Palsy Association, formed by a group of parents in Rochester, voted at a meeting January 9 to support the project at Strong Memorial Hospital and the Rochester Municipal Hospital for the care of children with cerebral palsy (The Journal, Dec. 22, 1945, p. 1216). The Cerebral Palsy Association comprises about 95 parents of children afflicted with the disease. Lawrence Ross, previously chairman pro tem of the association, was named chairman at the meeting and Mrs. Herbert Soule, wife of Dr. Herbert C. Soude Jr., instructor in pediatrics at the University of Rochester School of Medicine and Dentistry, was named secretary. There are said to be about 300 children in Rochester affected with cerebral palsy. The parents who banded together originally planned to obtain funds to provide a spacious building for the care of these children.

New York City

Physician Chosen Princeton Board Member.—Dr. Fordyce Barker St. John has been elected a member of the board of trustees of Princeton University, Princeton, N. J. Dr. St. John graduated at Princeton in 1905 and at Columbia University College of Physicians and Surgeons in 1909, serving there currently as professor of clinical surgery.

Blood Transfusion Grants.—The Blood Transfusion Association of New York will resume grants-in-aid for research in the field of blood and blood substitutes in relation to transfusions. Those interested in obtaining such grants should write, giving full information concerning their projects, to Chairman, Research Grants Committee, 2 West 106th Street.

Hepatic Disorders.—On February 7 the New York Academy of Medicine will devote a meeting to the discussion of hepatic disorders, with Drs. Franklin M. Hanger Jr. speaking on "The Uses and Limitations of Liver Function Tests" and Allen O. Whipple and Arthur H. Blakemore on "Indications for Shunting Operations Determined by Pathologic Findings."

Judd Prize Goes to Allen Whipple.—The annual Judd Award of the Memorial Hospital for Cancer and Allied Diseases will be presented to Dr. Allen O. Whipple, professor and executive officer of the department of surgery, Columbia University College of Physicians and Surgeons, the New York *Times* announced January 17. Dr. Whipple was nominated for the award for having made the "greatest advancement to the discovery of a cure for cancer." The citation noted Dr. Whipple's special achievements in surgery in the field of cancer relating to the duodenum and pancreas, adding that his method "has established entirely new and successful opportunities for [illegible] ure of a group of cancers previously deemed hopeless." The Judd award was established in 1937 under the will of Katherine Berkan Judd, who died in 1934 and left a trust fund to provide an annual prize of $1,000 to encourage research in the causes and cure of cancer.

"Dean's Committee" to Recruit Doctors for Veterans' Hospitals.—Announcement was made January 5 of a "deans' committee," representing all five medical colleges in New York City, to cooperate with the Veterans Administration in the recruitment of physicians for veteran's hospitals. The New York City committee consists of Dr. Willard C. Rappleye, dean of the Columbia University College of Physicians and Surgeons, chairman; Dr. Jean A. Curran, president and dean of the Long Island College of Medicine, Brooklyn; Dr. J. A. W. Hetrick, president and dean of the New York Medical College, Flower and Fifth Avenue Hospitals; Joseph C. Hinsey, Ph.D., dean of the Cornell University Medical College, and Dr. Donal Sheehan, acting dean of the New York University College of Medicine. Anticipating recent enactment of a law creating a bureau of medicine and surgery in the Veterans Administration, the medical colleges set up the committee some time ago to work out methods of administration with Col. Harvey C. Hardegree, manager, and Col. John G. Hood Jr., clinical director, of the 2,000 bed Kingsbridge Veterans Hospital in the Bronx. The committee is empowered to nominate the professional staff at the hospital. A number of fifteen to twenty senior consultants from a list of leading New York specialists is to be nominated, this group to be supplemented later with about one hundred consultants to act as attending or visiting physicians, mostly on part time duty, and from sixty to eighty resident physicians on full time duty. The Kingsbridge Hospital now has 119 full time medical officers, some of whom will remain on full time or part time duty, while others will be assigned to other veterans' hospitals.

SOUTH CAROLINA

Dr. Ball Returns to State Position.—Dr. Robert W. Ball, Columbia, recently released from the army, has returned to his position as director of the division of maternal and child welfare of the South Carolina State Department of Health. Dr. Hilda Sheriff, Columbia, who served as director of the division in the absence of Dr. Ball, will become associate director.

Personal.—Dr. Mauldin J. Boggs, Abbeville, who has been health officer of McCormick and Greenwood counties, with headquarters at Greenwood, has been appointed health officer for Abbeville County, with offices in Due West.——Dr. Joseph Decherd Guess, Greenville, has been named editor of the Bulletin of the Greenville County Medical Society to succeed Dr. James W. Jervey, Greenville, resigned.——Dr. and Mrs. Robert Wilson, Charleston, observed their fiftieth wedding anniversary November 27.

New Head of Physiologic Chemistry.—Dr. William M. McCord, formerly associate professor of physiologic chemistry, Louisiana State University School of Medicine, New Orleans, has been appointed professor and head of the department of physiologic chemistry of the Medical College for the State of South Carolina. At a special meeting of the house of delegates of the South Carolina Medical Association and other members in Columbia, S. C., January 3, unanimous approval was given the construction program of the medical college. This includes a teaching hospital under ownership and operation by the medical school in addition to hospital teaching facilities provided by the Roper Hospital, with which a cooperative agreement has been established. A committee consisting of members from each county was established by the association to promote the medical college program.

TEXAS

Psychopathic Hospital Reopened.—The Galveston State Psychopathic Hospital, a unit of the University of Texas Medical Branch, Galveston, under the direction of Dr. Jack R. Ewalt, professor of neuropsychiatry, has reopened for the diagnosis and management of acute cases of mental disorder. The hospital was formerly under the direction of the state board of control but was transferred to the university by legislative action (The Journal, June 9, 1945, p. 454). Its bed capacity has been increased from 80 to 120. The hospital furnishes special facilities for teaching and research in neurology and psychiatry.

Medical Service Society Honored.—The Medical Society of Dallas was guest at a luncheon, December 15, given by the Southwestern Medical Foundation in recognition of its "service in medicine" in Dallas. The group, which represents the pharmaceutical houses in the area, was presented with a bronze plaque. The Medical Service Society of Dallas, whose membership is made up of representatives of various pharmaceutical houses in America who live in Dallas, was formed about two years ago. The Dallas chapter has adopted the medical library of the Southwestern College as a project and has been active in its development. The *Dallas Medical Journal* states that other chapters of the society are being organized, with some units already operating in Houston and Fort Worth.

UTAH

Activities at Utah Medical School.—Dr. Scott M. Smith has been named assistant clinical professor of anesthesiology and acting head of the newly established department of anesthesiology at the University of Utah School of Medicine, Salt Lake City. Gustave Albin Matson, Ph.D., who has been on active duty in the U. S. Sanitary Corps since 1942, has returned to his position at the university as associate professor of bacteriology. New appointments at the school include:

Dr. Randolph T. Shields, formerly resident in surgery at the University of Pennsylvania and more recently major in the U. S. Army Medical Corps in the China-Burma-India Theater, instructor in surgery.

Dr. Crichton McNeal, now stationed at the Army Institute of Pathology, Washington, D. C., instructor in pathology.

Dr. David W. Morgan, now at the Regional Hospital, Camp Swift, Texas, clinical instructor in psychiatry.

The Abbott Laboratories of North Chicago has made another grant of $1,500 to the department of pharmacology for the continuation of research on anticonvulsant and other drugs. The Amalgamated Sugar Company of Ogden has donated $300 to assist in remodeling Dr. Matson's research laboratory in the department of bacteriology. The Givaudan-Delawanna Corporation has granted to Dr. Philip B. Price, professor and head of the department of surgery, $5,250 for the investigation of skin disinfection. The Utah Medical Foundation has contributed $500 to the school of medicine for the purchase of books and journals for the medical library.

VIRGINIA

Health Council Formed.—Representatives of thirty-seven organizations interested in public health and medical care at a meeting in Richmond recently decided to establish a statewide health and medical care council and named a committee to work out details of the organization. W. T. Sanger, LL.D., president of the Medical College of Virginia, Richmond, will serve as chairman of the committee.

Dr. DeJarnette Leaves State Service.—Dr. Joseph S. DeJarnette, physician in charge of the DeJarnette Sanitarium, Staunton, has resigned, concluding fifty-six years' service to the state, according to *Southern Medicine and Surgery*. Dr. DeJarnette in 1939 was honored by the staff of the hospital for his completion of fifty years on the hospital staff. He graduated at the Medical College of Virginia, Richmond, in 1888 and began his career at the hospital as third assistant physician. He became superintendent in 1906. In 1928 he founded the DeJarnette Sanitarium, which is a unit of the Western State Hospital.

Gift to Medical School.—Dr. Charles S. Venable, chief surgeon of the Nix Hospital, San Antonio, Texas, has given the University of Virginia Department of Medicine, Charlottesville, $1,500 in war bonds in support of a lectureship in traumatic surgery which he established three years ago (The Journal, April 29, 1944, p. 1310). In the fall of 1942 Dr. Venable turned over to the university his royalty rights for an adjustable splint of his own invention to set up a lectureship as a memorial to his father, the late Charles S. Venable, who was for many years a member of the university faculty as professor of mathematics.

PUERTO RICO

Public Health Meeting.—The Public Health Association of Puerto Rico will hold its fifth annual meeting February 6-9 at the School of Tropical Medicine, San Juan. Among the speakers will be:

Dr. Milton J. Rosenau, Chapel Hill, N. C., president-elect, American Public Health Association.

Dr. John R. Heller Jr., Washington, chief, venereal disease division, U. S. Public Health Service.

Dr. Julio Bustos, chief, Social Health Department, Santiago de Chile.

Margaret Merrell, Sc.D., associate professor of biostatistics, Johns Hopkins University School of Hygiene and Public Health.

John M. Hepler, C.E., director, bureau of sanitary engineering, Michigan Department of Health, Lansing.

One session will be addressed by Gov. Rexford G. Tugwell, Hon. Luis Munoz Marin, president of the Senate, and Dr. Antonio Fernos Isern, commissioner of health of Puerto Rico.

GENERAL

Course for Pathologists.—The postwar educational planning board of the American Society of Clinical Pathologists, of which Dr. Robert A. Moore, St. Louis, is chairman, announces a postgraduate refresher course for pathologists returning from military service, to be held at the Drake Hotel, Chicago, March 2-5.

Conference on Proposed U. S. P. XIII Standards.—Following the pharmacopeial policy in recent revisions, an open U. S. P. conference has been arranged. Any one who is interested in the proposed new or revised standards is invited to present comments or suggestions looking to improvements in proposed U. S. P. standards as released in proofs and circulars. The conference will be held at the Hotel Pennsylvania, New York, starting on February 15. It will continue throughout the day and evening and probably on the following day, February 16. E. Fullerton Cook, Pharm.M., is chairman of the U. S. P. committee of revision.

Citizens Planning Committee for Health.—The Citizens Planning Committee has been organized by the National Health Council, 1790 Broadway, New York, to provide leadership in a movement to coordinate the work of some twenty thousand voluntary health agencies in the country. The committee comprises twenty-five leaders in public service and will work with the professional board of the council. Louis I. Dublin, Ph.D., New York, second vice president of the Metropolitan Life Insurance Company, is temporary chairman. The committee will formulate a plan to strengthen the National Health Council with new executive direction and a unified health education and fund raising program.

Training for Pediatricians.—The American Academy of Pediatrics has received a grant of $10,000 from Mead Johnson and Company to launch a program of placing physicians training in pediatrics available for physicians coming out of the armed services. The program, which is not confined to members of the academy, will include a recommendation for refresher courses, and for residencies that are vacant and other advanced positions. Facilities have been set up in the office of the secretary of the American Academy of Pediatrics, Dr. Clifford G. Grulee, 636 Church Street, Evanston, Ill. The creation of the service stemmed from a survey made by a committee on postwar planning and postwar courses of the academy, of which Dr. Irvine McQuarrie, Minneapolis, is chairman.

Special Society Elections.—At the annual meeting of the American Therapeutic Society at the Netherland Plaza Hotel, Cincinnati, November 11-12, Dr. Joseph F. Borg, St. Paul, was elected president; Drs. William Bryant Rawls, New York, Lucien A. LeDoux, New Orleans, and Nathan S. Davis III, Chicago, vice presidents; Dr. Oscar B. Hunter, Washington, secretary, and Dr. Daniel L. Sexton, St. Louis, treasurer.——Dr. Thomas L. Lee, Kinston, N. C., was elected president of the Seaboard Medical Association at its meeting in Virginia Beach, Va., December 13. He succeeds Dr. Antonio A. Burke, Norfolk, Va. Other officers include Dr. Clarence P. Jones Jr., Newport News, Va., first vice president, and Dr. Clarence P. Jones Sr., also of Newport News, who was reelected for his thirty-eighth consecutive term as secretary-treasurer.

Grants of the Commonwealth Fund.—Recent appropriations of the Commonwealth Fund, New York, include $304,000 for public health activities in Tennessee, Oklahoma and Mississippi, $204,000 for medical research and $121,000 for medical education. Among the research grants were one for the study of arthritis at the Harvard Medical School, Boston, and another for research in kidney and vascular physiology, with special reference to hypertension, at the New York University College of Medicine. A grant of $57,000 was made to Cornell University Medical College, New York, to establish a new clinic where physicians can be trained in a broader medical service than is now available, and $40,000 was granted to the Medical College of Virginia, Richmond, to initiate postgraduate educational services in eastern and southeastern Virginia. The Commonwealth Fund fellowships for British students, first offered in 1925 and interrupted in 1941 by the war, will be resumed next spring, when the British committee of award will be invited to nominate twenty fellows for 1946.

John Hubbard Named Director of Child Health Study.—Dr. John P. Hubbard, instructor of pediatrics (on leave), Harvard Medical School, and in charge of the cardiac clinic of the Children's Hospital, Boston, has been appointed director of a study of child health services of the American Academy of Pediatrics. Dr. Hubbard is directing the project under the auspices of a specially appointed committee of nine members on the study of child health service of the academy in cooperation with the U. S. Public Health Service and the U. S. Children's Bureau. Working with Dr. Hubbard are Drs. Katherine Bain, Washington, D. C., representing the U. S. Children's Bureau, and Charles L. Williams Jr., Wadesboro, N. C., representing the U. S. Public Health Service, both of whom are serving as field directors. Dr. Joseph Lachman, also on loan from the U. S. Public Health Service, is serving as executive secretary of the study in North Carolina, where the national project was launched (The Journal, Dec. 8, 1945, p. 1036). Dr. Hubbard, who was recently released from military service, will have headquarters for the national study in the Children's Hospital, Washington.

Gastroenterological Association Creates Prize.—The National Gastroenterological Association announces the establishment of an annual cash prize award of $100 and a certificate of merit for the best unpublished contribution on gastroenterology or allied subjects. Certificates will also be awarded those physicians whose contributions are deemed worthy. Contestants residing in the United States must be members of the American Medical Association. Those residing in foreign countries must be members of a similar organization in their own country. The winning contribution will be selected by a board of impartial judges, and the award is to be made at the annual convention banquet of the National Gastroenterological Association to be held at the Hotel Pennsylvania, New York, June 20. Certificates awarded to other physicians will be mailed to them. The decision of the judges will be final. The association reserves the exclusive right of first publishing the winning contribution and those receiving certificates of merit in its official publication, the *Review of Gastroenterology*. All entries for the 1946 prize should be limited to 5,000 words, be typewritten in English, be prepared in manuscript form, be submitted in five copies, be accompanied by an entry letter and be received not later than May 1. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23.

Science Writing Award Fund.—On January 14 the American Association for the Advancement of Science announced the establishment of the George Westinghouse Science Writing Award Fund to give national recognition to newspaper writers and newspapers contributing most to better popular understanding of the achievements of science and technology. It was stated that the fund had been provided by the Westinghouse Educational Foundation, which is supported by the Westinghouse Electric Corporation in commemoration of the hundredth anniversary of the birth of George Westinghouse. The fund will be administered by the American Association for the Advancement of Science to develop closer cooperation between scientists and news writers in keeping the public informed of scientific developments which more and more affect human lives in this atomic age. In addition to encouraging news writers of press associations as well as newspapers themselves to cultivate general sources of science news in their communities and the marshaling of the 27,000 scientist members of the American Association for the Advancement of Science to this end, the fund provided two annual awards: a cash award of $1,000 to a newspaper writer for outstanding science reporting of the year and a citation to the newspaper whose science news coverage in the preceding year is adjudged most complete and authoritative and most interestingly presented. There may also be awarded at the direction of the awards committee special citations in recognition of distinguished service in science journalism. The first annual awards, covering the year 1946, will be made at the winter meeting of the American Association for the Advancement of Science in December 1946. Details of the judging and presentation of awards will be made at the spring meeting of the association in St. Louis, March 27-31.

CORRECTION

Trichinosis.—In the article on "An Effective Method for the Control of Trichinosis in the United States" (The Journal, Dec 29, 1945), by Dr. S. E. Gould, there was an omission in the fourth sentence of the second paragraph in the right hand column on page 1254. This sentence should read "It has also been found that raw pork in commercial quantities may be rendered free of infective trichinae by lowering its temperature to minus 35 C. (minus 31 F.) or below and holding it at that temperature for two hours or by freezing at minus 17.8 C. (0 F.) for seventy-two hours."

Deaths

Newton Gurdon Evans ⊕ Los Angeles; Cornell University Medical College, New York, 1900; born in Hamilton, Mo., June 1, 1874; taught pathology for a short while at the old American Medical Missionary College in Battle Creek, Mich., moving to the University of Tennessee College of Medicine, Nashville, where he taught pathology until 1911; joined the College of Medical Evangelists, where he became president and professor of pathology in 1914, serving as professor and head of the department until the time of his death, member of the board of trustees, vice president from 1931 to 1936, dean from 1927 to 1931 and again for one year beginning in June 1944; chairman of the board of the Alumni Research Foundation, College of Medical Evangelists; for many years pathologist and director of the laboratory of the Los Angeles County Hospital; specialist certified by the American Board of Pathology, Inc.; fellow of the American College of Physicians and the American Association for the Advancement of Science; member of the Los Angeles Pathological Society and in 1929 president, Los Angeles Cancer Society, president in 1936, American Association of Pathologists and Bacteriologists, American Society of Clinical Pathologists and the Los Angeles Academy of Medicine; retired lieutenant colonel in the medical reserve, serving as commanding officer of the U. S. General Hospital number 47 from 1926 to 1932 and from 1935 to 1937; one of the counselors of the Surgeon General's Library; on Jan. 30, 1945 his portrait was presented to the White Memorial Library; introduced cooperative plan of education in medicine; died in the White Memorial Hospital December 19, aged 71, of carcinoma.

Sumner Marcy Miller ⊕ Peoria, Ill.; Northwestern University Medical School, Chicago, 1899; born in Farmer City, Ill., in 1873; since 1938 health officer of Peoria; president of the Illinois Public Health Association, of which he had been a founder; past president of the Peoria Medical Society; fellow of the American Public Health Association; a founder and for many years president of the Peoria County Tuberculosis Association; founder and first president of the Peoria County chapter of the American Red Cross, which he organized at the outbreak of World War I; later served as a captain in the medical corps of the U. S. Army; a director of the Visiting Nurses Association; a member and past president of the staff of the Methodist Hospital; served on the staff of the Peoria Municipal Tuberculosis Sanitarium; president of the Peoria X-Ray Laboratory; in 1941 received the Northwestern University award of merit for achievement in public health work; as the result of the advancements during his commissionership the city received a health honor roll plaque for the first place among cities under 150,000 from the American Public Health Association and from the United States Chamber of Commerce in 1943 and again in 1944; died December 14, aged 72, of carcinoma of the sigmoid.

Julian Mayo Cabell ⊕ Lieutenant Colonel, U. S. Army, retired, Washington, D. C.; born in Richmond, Va.; Dec. 21, 1860; University of Virginia Department of Medicine, Charlottesville, 1886; entered the U. S. Army as an assistant surgeon in 1887; retired as a captain on March 29, 1897 for disability in line of duty; returned to active duty from May 1914 to December 1914 and from June 24, 1917 until he retired as a major in September 1919; retired with the rank of lieutenant colonel on June 21, 1930 under a special act of Congress; held the Legion of Honor and Purple Heart; served in the Spanish-American War and the Philippine Insurrection; surgeon on the hospital ship *Maine* during the Boer War; served during World War I; at one time superintendent of the Columbia Hospital for Women; died in the Walter Reed General Hospital November 15, aged 84, of carcinoma.

Clyde Madison Speck ⊕ New Albany, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1912; served as associate in psychiatry at the University of Mississippi School of Medicine, University; fellow of the American College of Surgeons; past president and vice president of the Mid-South Postgraduate Medical Assembly; vice president of the state medical association in 1933 and president of the North Mississippi Medical Society in 1939; served during World War I; formerly medical superintendent of the Mississippi State Hospital in Whitfield; helped found the New Albany Hospital, where he died November 9, aged 58, following an appendectomy.

Ludwig Silverman Simon ⊕ Los Angeles; College of Physicians and Surgeons, medical department of Columbia College, New York, 1894; an Affiliate Fellow of the American Medical Association; emeritus member of the Illinois State Medical Society; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; fellow of the American College of Surgeons; formerly president of the medical staff and head of the department of obstetrics at the Michael Reese Hospital, Chicago; died in the Cedars of Lebanon Hospital October 7, aged 74, of uremia, arteriosclerotic heart disease and prostatic hypertrophy.

Vernon Scott Lilly ⊕ Detroit; Ohio State University College of Medicine, Columbus, 1924; fellow of the American College of Surgeons; served during World War I; formerly industrial surgeon for the Parke-Davis Company; on the courtesy staffs, Woman's, St. Joseph's Mercy, Cottage, Florence Crittenton, Charles Godwin Jennings and East Side General hospitals; interned at St. Mark's Hospital in Cleveland and the Harper Hospital, where he served a residency, as assistant surgeon to outpatient department, division of surgery, and where he died September 27, aged 47, of coronary thrombosis.

Benjamin Trowbridge Tilton ⊕ New York; Albert-Ludwigs Universität Medizinische Fakultät, Freiburg, Baden, Germany, 1893; an Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; served as director of surgery at the Broad Street Hospital; for many years president and chief of the surgical service at St. Mark's Hospital, where he established a scholarship for nurses; consulting surgeon to the Lincoln and Manhattan State hospitals; died in Black Point, Conn., September 23, aged 77, of heart disease.

Charles William Rodgers Jr., Alexandria, Va.; University of Virginia Department of Medicine, Charlottesville, 1930; interned at the Gallinger Municipal Hospital and formerly resident physician at the George Washington University Hospital in Washington, D. C., where he was associated with the National Airport; member of the American Medical Association; formerly health officer, and on the staff of the King's Daughters' Hospital, Staunton; on the staff of the Alexandria Hospital, where he died October 9, aged 41, of subarachnoid hemorrhage and bronchopneumonia.

Luther Lefever Ames, Wichita, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1880; died October 8, aged 94, of coronary occlusion followed by cerebral embolism.

Frank J. Austin, Laceyville, Pa.; University of Nashville Medical Department, 1910; member of the American Medical Association; died September 29, aged 81, of coronary thrombosis.

Francis Herbert Battey, Iowa City; Kansas Medical College, Topeka, 1893; died September 3, aged 79, of carcinoma of the prostate.

Martin Luther Bearden, Memphis, Tenn.; Memphis Hospital Medical College, 1909; member of the American Medical Association; died in the Baptist Memorial Hospital October 27, aged 63, of circulatory failure.

L. V. Bishop, Lancaster, S. C.; Baltimore Medical College, 1893; died October 9, aged 74.

James Alexander Boon, New York; Bellevue Hospital Medical College, New York, 1888; for many years a member of the U. S. Narcotic Bureau; died October 20, aged 79.

Henry Thomas Brogan, West Allis, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1903; died in St. Joseph's Hospital, Milwaukee, October 9, aged 69, of arteriosclerosis and interstitial obstruction.

John Buckley ⊕ Chicago; Illinois Medical College, Chicago, 1906; died October 29, aged 69, of acute dilatation of the heart and chronic myocarditis.

Alanson Capehart, Roxobel, N. C.; Bellevue Hospital Medical College, New York, 1887; served as bank president; died October 11, aged 80, of coronary thrombosis and arteriosclerotic heart disease.

Enos Ralph Cheney, Gypsum, Kan.; Kansas City (Mo.) Medical College, 1891; honorary member of the Kansas Medical Society; served in the medical corps of the U. S. Army during World War I; for many years served on the local school board, most of the time as director, and on the city council; died in a hospital at Wichita October 9, aged 74.

Roy William Chivers, Jackson, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; member of the American Medical Association; served as health officer and president of the board of health; on the staff of the W. A. Foote Memorial Hospital; died October 25, aged 67, of coronary occlusion.

Robert William Cotton ⊕ Bellevue, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1906; served during World War I; company surgeon for the Pittsburgh and Lake Erie Railroad Company; died in Baltimore October 14, aged 68, of coronary heart disease.

Richard F. Crabtree, Gamaliel, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1882; member of the American Medical Association; on the staff of the T. J. Samson Community Hospital in Glasgow; died October 17, aged 87, of chronic myocarditis.

William McKee Crosier ⊕ Alexis, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; past president of the Warren County Medical Society; served as a member of the local school board and of the Warren County library board; on the staffs of the St. Mary's and Cottage hospitals in Galesburg and the Monmouth Hospital in Monmouth, where he died October 27, aged 69, of heart disease.

Burnham C. Dale, Marion, Ind.; Medical College of Indiana, Indianapolis, 1893; member of the American Medical Association; county coroner; member of the board of directors of the Emily Flynn Home for the Aged; died October 26, aged 74, of coronary occlusion.

Francis Peter Daly, Chippewa Falls, Wis.; Rush Medical College, Chicago, 1897; member of the American Medical Association; deputy state health officer; died in Rochester, Minn., October 15, aged 76, of ileocolitis and carcinoma of the colon.

Magnet Jervais Davis, Los Angeles; Cincinnati College of Medicine and Surgery, 1896; died October 25, aged 79, of generalized arteriosclerosis.

Maxwell Dorr, Brooklyn; Long Island College of Medicine, Brooklyn, 1932; member of the American Medical Association; began active duty as a first lieutenant in the medical corps, Army of the United States, in October 1942; service terminated in August 1943; on the courtesy staff of the Israel Zion Hospital; adjunct in the department of gynecology at the Beth Moses Hospital, where he died August 24, aged 36, of malignant hypertension.

Thomas Longley Eland ⊕ Letts, Iowa; State University of Iowa College of Medicine, Iowa City, 1907; died in Iowa City October 27, aged 69, of arteriosclerotic heart disease.

Julius Essrig ⊕ Mount Vernon, N. Y.; University and Bellevue Hospital Medical College, New York, 1913; past president of the Mount Vernon Medical Society; fellow of the American College of Surgeons; member of the draft board during World Wars I and II; on the staff of the Mount Vernon Hospital; died October 9, aged 55, of hypertensive heart disease.

Eudora Winifred Faxon, Newton, Mass.; Tufts College Medical School, Boston, 1904; served as superintendent of the Woodlawn Sanitarium; died October 13, aged 68.

Dorsey Wayland Fellers, Bloomville, Ohio; Ohio Medical University, Columbus, 1902; served in France during World War I; formerly county health commissioner; on the staff of the Mercy Hospital in Tiffin; bank president; died October 28, aged 71, of cerebral hemorrhage.

Frederick Harrison Ferguson, Elroy, Wis.; Jenner Medical College, Chicago, 1906; served during World War I; died in Bay Pines, Fla., September 18, aged 74.

Henry Sampson Goodman, Cary, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1897; member of the American Medical Association; died October 24, aged 69, of coronary heart disease.

Yancey E. Gordon, Bucatunna, Miss.; Kentucky School of Medicine, Louisville, 1890; member of the American Medical Association; also a druggist; died October 16, aged 83, of pneumonia.

Henry Raymond Gross, Chicago; State University of Iowa College of Homeopathic Medicine, Iowa City, 1910; died near Milwaukee September 30, aged 61.

Bertram Johnson, Eureka, Kan.; Jenner Medical College, Chicago, 1908; Hering Medical College, Chicago, 1909; member of the American Medical Association; died September 12, aged 68.

William Craig Judd, West Los Angeles, Calif.; Willamette University Medical Department, Salem, Ore., 1906; died in the Veterans Administration Facility October 23, aged 62, of heart disease and diabetes mellitus.

Orville Kenneth Kaylor ⊕ St. Louis; Barnes Medical College, St. Louis, 1903; died October 24, aged 72, of arteriosclerosis.

Logan Guernsey Kimzey ⊕ Pullman, Wash.; Washington University School of Medicine, St. Louis, 1910; past president of the Whitman County Medical Society; died September 23, aged 67, of cerebral hemorrhage.

Carl Ross Knoble ⊕ Sandusky, Ohio; Starling Medical College, Columbus, 1905; past president of the Erie County Medical Society; formerly county coroner; for many years member and president of the board of education; medical examiner for the Metropolitan Life Insurance Company for many years; on the staffs of the Providence and Good Samaritan hospitals; past president of the Palm Brook Country Club; vice president of the Peoples Loan and Saving Company; died October 24, aged 65, of coronary thrombosis.

John Elias Kumpf ⊕ New York; Baltimore University School of Medicine, 1900; died October 9, aged 72.

Charles W. LaRue, Parrottsville, Tenn.; University of Virginia Department of Medicine, Charlottesville, 1893; died in the Takoma Hospital and Sanitarium in Greeneville, October 30, aged 75, of nephritis and pernicious anemia.

Roy Hamilton Long, Monroe, N. C.; Jefferson Medical College of Philadelphia, 1916; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association; served in France during World War I; assistant superintendent from 1938 to 1942 and for many years a member of the staff of the State Hospital in Morganton; died October 18, aged 54, of coronary thrombosis.

Melville LeRoy Loomis, Long Beach, Calif.; University of Southern California College of Medicine, Los Angeles, 1900; served on the staff of the Hospital of the Good Samaritan in Los Angeles; surgeon and medical director of the Douglas Aircraft Corporation; died in Santa Barbara October 14, aged 69, of coronary thrombosis.

William Tripner Dowler MacDonnell, Melrose Park, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1904; served on the staff of St. Luke's Hospital in Philadelphia; died in the Hahnemann Hospital, Philadelphia, October 28, aged 66, of coronary occlusion.

Lorne Mahaffey MacDougall ⊕ Brooklyn; M.B. in 1913 and M.D. in 1915, Queen's University Faculty of Medicine, Kingston, Ont., Canada; specialist certified by American Board of Otolaryngology; associate surgeon at the Brooklyn Eye and Ear Hospital; died October 3, aged 65.

Guy Elliott Marcy ⊕ Yakima, Wash.; State University of Iowa College of Medicine, Iowa City, 1908; served in France during World War I as a captain with Base Hospital number 50; on the staff of St. Elizabeth's Hospital; surgeon for the Northern Pacific Railway for twenty-five years; died October 24, aged 59, of cerebral hemorrhage.

Frank Eugene Mayberry ⊕ Rockland, Mass.; Dartmouth Medical School, Hanover, N. H., 1885; died October 1, aged 85, of diabetes mellitus and heart disease.

Malcolm McKellar ⊕ Tulsa, Okla.; Bennett Medical College, Chicago, 1913; member of the American Urological Association; specialist certified by the American Board of Urology, Inc.; medical officer in the medical corps of the U. S. Army during World War I; formerly chief of staff at St. John's Hospital; died October 8, aged 59.

Patrick James McLaughlin, Nashua, N. H.; Baltimore Medical College, 1906; member of the American Medical Association; on the staffs of the St. Joseph's Hospital and the Nashua Memorial Hospital, where he died September 8, aged 67, of acute dilatation of the heart and arteriosclerosis.

Walter Miles ⊕ Viola, Ill.; Rush Medical College, Chicago, 1898; died October 29, aged 77, of cerebral thrombosis.

Earl Joseph Morrow, Kansas City, Mo.; Medico-Chirurgical College of Kansas City, 1903; died October 7, aged 66.

Stephen Arthur Oliva, Marcus Hook, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1932; member of the American Medical Association; began active duty as a first lieutenant in the medical corps, Army of the United States, on Nov. 1, 1942; service terminated Sept. 24, 1943; drowned September 3, aged 39, when he fell from his yacht in Northeast River, Md.

George Byron Parisen, Toledo, Ohio; Western Reserve University Medical Department, Cleveland, 1908; served in the Spanish-American War and World War I; for many years surgeon at the Willys-Overland Motors Company; died October 16, aged 70, of arteriosclerosis and chronic nephritis.

John Porter Pennell ⊕ Kokomo, Ind.; Indiana University School of Medicine, Indianapolis, 1935; began active duty as a captain in the medical corps, Army of the United States, on Jan. 5, 1941; relieved of active duty during October 1944; died in a hospital at Columbus, Ohio, October 19, aged 34.

William D. Pennington, Chicago; Hospital College of Medicine, Louisville, Ky., 1894; on the staffs of the Illinois Masonic and Columbus hospitals; died in the American Hospital October 23, aged 88, of cerebral hemorrhage.

William Winston Pettus, Changsha, Hunan, China; Yale University Medical School, New Haven, Conn., 1937; diplomate of the National Board of Medical Examiners; interned at the Presbyterian Hospital in New York, where he served a residency; professor of surgery at the Hunan Yale Medical College; on the staff as teacher at Hsiang-Ya College of Medicine; had been affiliated with the Hunan-Yale Hospital; killed in an airplane accident at Hwangping, Kweichow, China, November 18, aged 33.

William Eugene Ranz ⊕ McAllen, Texas; Miami Medical College, Cincinnati, 1899; born in Cincinnati on March 20, 1873; member of the Ohio State Medical Association; past president of the Mahoning County (Ohio) Medical Society; fellow of the American College of Surgeons; for several years a member of the board of education in Youngstown, Ohio, where he was on the staff of the old Mahoning Valley Hospital and St. Elizabeth's Hospital; a captain during World War I; died October 20, aged 72, of coronary occlusion.

Robert Ellsworth Riley ⊕ Celina, Ohio; Rush Medical College, Chicago, 1893; also a graduate in pharmacy; on the staffs of the Gibbons Hospital and the Otis Hospital, where he died October 25, aged 82, of cerebral hemorrhage.

Arthur Maurice Rogers, Los Angeles; State University of Iowa College of Medicine, Iowa City, 1895; for twenty years assistant city health officer in charge of the venereal section clinic; died October 21, aged 76, of cirrhosis of the liver.

James Melburn Ruckman ⊕ La Rue, Ohio; Starling Medical College, Columbus, 1900; member of the La Rue and Marion County board of education; on the staff of the Marion City Hospital, Marion; died October 25, aged 73, of heart disease.

Levi Albertus Ruhl ⊕ Covington, Ohio; Jefferson Medical College of Philadelphia, 1905; died October 19, aged 68, of cerebral hemorrhage.

John G. Seiter, Marion, Ohio; Homeopathic Hospital College, Cleveland, 1881; served as mayor of Marion; died October 23, aged 93, of senility.

John Gill Shimmon ⊕ Cleveland; University of Wooster Medical Department, Cleveland, 1912; for many years member and frequently president of the Willoughby village school board and Union High school committee; served as president of the Northeastern Ohio Boy Scout Council; presented the Silver Beaver award in recognition of his valued services to boy scouting; member of the board of trustees of Andrews School for Girls in Willoughby; died in the Lakeside Hospital October 23, aged 61, of perforated duodenal ulcer.

Clyde Earl Shinkle ⊕ Cincinnati; Ohio-Miami Medical College of the University of Cincinnati, 1910; assistant professor of psychiatry at his alma mater, now known as the University of Cincinnati College of Medicine; member of the American Psychiatric Association; at one time assistant superintendent of the Longview State Hospital; on the staffs of the Speer's Memorial Hospital, Dayton, Ky., General, Deaconess and Good Samaritan hospitals; died October 5, aged 60, of bronchiogenic carcinoma.

Robert Simms, Akron, Ohio; Ohio Medical University, Columbus, 1903; died in St. Thomas Hospital October 29, aged 74, of coronary thrombosis and arteriosclerosis.

Capt. James S. Knipe, M. C., A. U. S., 1918-1945

John Knox Smith, Charleroi, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1888; served as a member of the first school board, for many years president of the board of health and postmaster of Charleroi; died October 8, aged 87.

Oscar H. Stewart ⊕ Orleans, Ind.; Pulte Medical College, Cincinnati, 1885; honorary member of the Indiana State Medical Association; died October 19, aged 85, of cardiovascular renal disease.

Thomas Hezekiah Street ⊕ Alexander City, Ala.; Jefferson Medical College of Philadelphia, 1900; served as secretary of the Tallapoosa County Medical Society, a member of the city council, member of the state legislature, state senator, city health officer and medical examiner for the Veterans Bureau; a captain in the medical corps of the U. S. Army during World War I; died October 24, aged 69, of coronary occlusion.

Samuel Gaines Stubbins ⊕ Birmingham, Ala.; St. Louis College of Physicians and Surgeons, 1907; member of the Southeastern Surgical Association; fellow of the American College of Surgeons; on the staffs of the Hillman Hospital and South Highlands Infirmary; died November 3, aged 65, of coronary thrombosis.

Samuel Henry Sulouff ⊕ Jersey City, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; also a graduate in pharmacy; served as a captain during World War I; for many years held various offices on the board of health; died in the All Souls Hospital, Morristown, November 2, aged 70, of bronchogenic carcinoma.

John S. Suva ⊕ Cleveland; John A. Creighton Medical College, Omaha, 1911; member of the Cleveland Academy of Medicine; died in St. Luke's Hospital October 16, aged 64, of injuries received in an automobile accident.

Horace Frederic Tangeman, Cincinnati; Ohio-Miami Medical College of the University of Cincinnati, 1912; member of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; served overseas during World War I; on the staffs of the Christ and Good Samaritan hospitals; died in St. Luke's Hospital, Chicago, October 11, aged 57, of coronary occlusion.

Ernest Julius Thierman ⊕ Cedar Falls, Iowa; Jefferson Medical College of Philadelphia, 1904; died September 13, aged 70, of cerebral hemorrhage.

Joseph Archibald Vance, Seattle; Eclectic Medical Institute, Cincinnati, 1886; died in a local hospital September 7, aged 86.

Dell Warner Ward, Oelwein, Iowa; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906; member of the American Medical Association; died September 29, aged 63, of coronary occlusion.

Isabel Monteith Weaver, Kankakee, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1907; on the staff of the Kankakee State Hospital, where she died November 14, aged 64, of heart disease.

John Raymond Wilkinson ⊕ Kankakee, Ill.; the Hahnemann Medical College and Hospital, Chicago, 1911; past president of the Kankakee County Medical Society; on the staff of St. Mary's Hospital, where he died November 9, aged 68, of cerebral hemorrhage.

KILLED IN ACTION

James Stuart Knipe, Armstrong, Iowa; State University of Iowa College of Medicine, Iowa City, 1943; interned at the Santa Clara County Hospital in San Jose, Calif.; diplomate of the National Board of Medical Examiners; began active duty as a lieutenant in the medical corps, Army of the United States, on December 29, 1943; in March 1944 received his assignment as battalion surgeon with the 381st Regiment, 96th Division, then stationed at Camp White, Ore.; received amphibious warfare training at San Luis Obispo, San Diego, and Camp Beale, Calif.; embarked for overseas duty from Camp Stoneman at Pittsburg, Calif., in July 1944; promoted to captain in September 1944; after several months' intensive training in Hawaii, participated in the invasion of Leyte Island on Oct. 20, 1944 and in the invasion of Okinawa April 1, 1945; killed in action in Okinawa April 12, aged 26.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Dec. 26, 1945.

Anticancer Center in France

There are in France sixteen anticancer centers, created by private concerns with a certain participation of the public authorities. Of these the Institute of Cancer, the Curie Foundation and the Parisian District Anti-Cancer Center are in Paris. At first these centers dealt only with diagnosis and hospitalization. The Institute of Cancer, under the direction of Professor Roussy, with the Curie Foundation under the direction of Professor Lacassagne, comprises the largest center in the country. It has a laboratory branch for research and a branch for hospitalization; the latter in 1944 dealt with 7,690 patients, with 2,902 new cases; 2,023 were hospitalized. Since 1941 all the centers have dealt with the early diagnosis of cancer. The largest diagnostic centers are in Paris and Nancy; as a rule, 1 person out of 33 examined was found to have cancer. In 1943, as an experiment, Chevalier, director of the National Institute of Hygiene, created a medicosocial department at the Institute of Cancer. Since January 1944 all centers have been endowed with such a department, which, with the help of the district nurses ("assistantes sociales") follows up cancer patients for a five year period.

Difficulty in the development of the centers was due to lack of a regular and secure budget. By order of the former minister for public health these centers have become establishments of public interest and are endowed with a budget by the state. They consist of surgery and radiotherapy wards. Each center must secure the services of a cancer specialist, an otorhinolaryngologist and a pathologist. Each center provides care for a special area; this geographic distribution covers the whole of France.

A unique nomenclature for the types of cancer has been established for all centers. Forms of two types are used in the centers: One form for new patients gives their clinical and therapeutic history, another form is for the supervision of the patients; examinations during the year, relapses, metastasis and other incidents. This last form is sent every year to the National Institute of Hygiene. The center keeps in permanent touch with patients through the district nurse, and the Institute of Hygiene possesses a scientific record. At the beginning of 1945, 7,500 files had already arrived at the institute. In order to obtain more complete documentation, an inquiry is being made on the biologic condition of tumor bearers. The inquiry will be completed when 10,000 files have been received.

Experiment in Social Medicine at the Paris Hospital Clinic

The reform of hospital legislation is, at present, being studied and an experiment is in progress at one of the large Paris hospitals, Beaujon, which had been at the disposal of the United States Army and after being modernized and reequipped was returned to the French administration on Nov. 15, 1945. This hospital is to become a diagnosis and treatment center. It will be open to all social classes. Under the statute of the hospital medical staff, doctors will be under a five year contract. They will be allowed to treat their private patients in the hospital wards, but they must devote a daily minimum of three hours to the service of the public; attendance on outside patients would be, as a principle, prohibited to hospital doctors to avoid the dispersion of their activities and allow these doctors to devote themselves wholly to scientific research and teaching. This hospital clinic will receive large subsidies from the future social security fund. There will be a secretarial department to maintain connection with doctors who send patients to the establishment; they will find in this new organization means of diagnosis and treatment not now available to them. Time will show the results of this experiment.

Hospital Problems

A new medical journal on hospital technics has just been issued under the direction of Henri Thoillier, author of "The French Hospital." It is the first periodical in France to be devoted exclusively to hospital problems. Among the contributors are Professor Justin Besançon, president of the French Red Cross, Professor Debré of the Academy of Medicine, Dr. Hazemann, regional director for public health and assistance, Mrs. Randoin, general secretary of the Society of Alimentary Hygiene, Dr. Rouques, technical adviser to the Ministry of Public Health, other doctors, engineers, architects, managers and administrators of hospitals. The aim of this journal is to foster the collaboration of all persons concerned with hospitals in an attempt to modernize French hospitals. In the first issue there are articles on hospital legislation, medicine, surgery and hospital architecture. It includes two articles by Mrs. Randoin on dietetics and daily equilibrated rations, with menus for institutions. In the same issue Dr. Bridgman sets forth the situation of hospitals in devastated Brittany; in the four departments of this region 4,526 beds were lost and 10,035 still exist. The department of Loire-Inférieure, which in the past was the twenty-ninth on the departmental list of French hospitals, now is the eighty-first; surgery centers are disorganized. The greatest damage occurred in Brest, Lorient, St. Nazaire and St. Malo.

SWEDEN

(From Our Regular Correspondent)

STOCKHOLM, Dec. 14, 1945.

First Postwar Nobel Celebration

This year's Nobel celebration was one of the most splendid and impressive ever held. The memorable event was held December 10 at the Stockholm Concert Hall. After the royal family entered with fanfares, the Nobel prize winners took their places on the platform, this year's winners in the front row and the winners of prizes in previous years behind them. Only five of this year's winners were able to be present: Gabriele Mistral, winner of the prize in literature, Professor Artturi I. Virtanen, winner of the chemistry prize, and the three winners in medicine, Dr. Ernst B. Chain, Sir Alexander Fleming and Sir Howard Florey. The prize winners of previous years, who had been unable to come to Stockholm before, were Johannes V. Jensen, winner of the 1944 prize in literature, Professor Herbert Gasser, who in 1944 received half of the medical award, Professor Leopold Ruzicks, who in 1939 won half of the chemistry award, and Professor Corneille Heymans, 1939 prize winner in medicine.

In addition three Swedes, former prize winners, were present on the platform—Professor Manne Siegbahn, 1944 winner in physics, Professor The Svedberg, 1926 chemistry winner, and Hans von Euler-Chelpin, 1929 winner in chemistry. The Hungarian professor George Hevesy, who received the chemistry award in 1943, also was present. Never before had so many Nobel prize winners been present in Stockholm at one time, and the Swedes outdid themselves both in the decorations of the concert hall and in the festivities that followed the awarding of the prizes by King Gustaf. The following day the king gave a dinner for the prize winners and numerous other guests, after which papers were read by Fleming and Florey in the auditorium of the Karolinska Hospital on the background, development and uses of penicillin.

Penicillin Again Rationed

The Swedish Medical Board has been obliged again to institute rationing of penicillin. During its unrationed period its use was tripled. In September 18,230 ampules were used, in October 24,592 and in November 20,716. At the beginning of December the entire stock consisted of only 21,528 ampules, and the demands of the Swedish hospitals were not entirely filled. To cover the need during January and February, at least 50,000 more ampules are needed. Since the American authorities have announced that the supply to Sweden will be reduced during the coming months, and no other source of supply exists for the Swedes, the situation does not look too promising.

Antipoliomyelitis Serum

Dr. Sven Gard of the state bacteriologic laboratory reports promising preliminary results in the development of an antipoliomyelitis serum. Dr. Gard is chief of the research team which has been carrying on this work at the School of Physics and Chemistry at Uppsala University through a grant from the King Gustaf Jubilee Fund. An additional grant has just been awarded to enable research to continue for another three years. After innumerable general studies of the poliomyelitis virus, research is now concentrated on the development of prophylactic methods of immunity. It is in this field that promising preliminary results have been achieved.

ITALY

(From Our Regular Correspondent)

Naples, Dec. 11, 1945.

Control of Bubonic Plague

Eleven cases of bubonic plague were reported in August 1945 in the area of the port of Taranto, where ships from oriental countries were anchored. The patients were immediately isolated. Five patients died. New cases of human contagion did not occur. It is believed that the plague was due to the presence of infected rats. The city was quarantined, and schools and places of public meetings were closed. American sanitarians took an active part in cleaning up the port, which included a campaign against rats. Huge pasteboard rats with antiplague inscriptions were exhibited in public squares in Genoa, Naples, Bari, Palermo and other seashore towns. The inscriptions read "Rats are carriers of plague. Kill them, poison them!" Plague is now entirely under control. The sanitary condition of Naples is normal. The city is not in quarantine and has returned to civil and military activities. One may conjecture that if this epidemic had appeared in 1943 (instead of in 1945, as it did) it would have spread to all European countries. The organic resistance of 450,000,000 European people was very low in 1943. Many families passed several hours of the day and night in subterranean shelters in poor hygienic condition after their homes had been demolished by bombs. The scanty amount of proteins in their food caused an imbalance of albumins and globulins in the blood as well as disorders of the water metabolism, with a consequent rapid loss of weight, urinary disorders and a collective diminution of immunity to infections. If the epidemic had occurred in 1943 it would have been more acute than was influenza after the war of 1914-1918. The epidemic of influenza in 1918 caused six million deaths in Europe. In 1943 sulfanilamide was not available in some European countries. Germany had a large store of drugs early in the war yet was in need of drugs late in its course. A congress of German and Italian immunologists was held in 1942 in celebration of Behring's centennial. The Germans stated that typhus was frequent in Russian soldiers and that German soldiers at the Russian front were using an insecticide substance of the type of DDT which, when dissolved in water and applied to the clothes, killed lice. An article with details of this insecticide substance appeared on pages 232-233 of the *Allgemeine Zeitung* of May 16, 1943. This powder was not provided for the Italian soldiers. During hostilities the Italians used sulfonamide preparations of the types of thiazole and pyridine, by which massive pandemics of pneumococcic diseases were prevented. However, in 1940 the Società Medica Lombarda reported 30 cases of atypical bronchopneumonia caused by pneumococci which were resistant to sulfonamide. The rate of mortality was more than 50 per cent.

American Physicians in Italy

The pattern followed by epidemic foci in Europe was surprising. The epidemics in Italy, like those in France, consisted of salmonellosis due to the paratyphoid bacillus C, smallpox, infectious jaundice and some other infections. Salmonellosis was caused by ingestion of bad meat which was sold through the black market. Smallpox was mild and of the "alastrim" type (which is pandemic in Africa and is very acute in Negroes). In Italy there were many cases, but the mortality rate was low. The appearance of typhus in Italy was exaggerated in some American magazines. The infection in Italy was not caused by Rickettsia prowazeki, as was the infection reported at the Russian and Polish fronts. It is believed that it was caused by Borrelia recurrentis.

Captain Woodward of the United States, a member of the Interallied Committee Against Typhus, now in Naples, recently read a paper on the subject. There was a large audience of American and Italian physicians, among them Colonel Spalding of Detroit, Dr. Anton of Los Angeles and Dr. Schumacher of Illinois. Dr. Woodward spoke on the work of the American Sanitary Committee in Italy. The work carried on in Italy by American authorities in sanitation has resulted in immediate control of epidemics in the country. There were several hundred cases of typhus reported in Naples during January and February 1944. The epidemic was controlled in the course of a few weeks by the work of the American committee, which included administration of the Cox vaccine and disinfection with DDT. The population of Naples in 1944 was more than three million.

BUENOS AIRES

(From Our Regular Correspondent)

Dec. 15, 1945.

Experimental Adrenal Insufficiency During Pregnancy

Dr. Bernardo A. Houssay, the president of the Sociedad Argentina de Biologia, recently read a paper before the society in which he reported that 50 per cent of rats which are adrenalectomized during pregnancy die before parturition. If the animals drink a 1 per cent sodium chloride solution only 14 per cent of the animals die before parturition. The death rate is minimal during the second and third pregnancies after adrenalectomy even if the animals do not receive salt water. At this time the accessory adrenal glands have hypertrophied. The offspring of adrenalectomized rats are small in the first parturition. They are of almost normal size in the second and third parturitions. The number of animals for each parturition is normal. The rats which undergo parturition within ten or fifteen days after adrenalectomy have insufficient milk or none at all. The offspring of these rats die within a few days or grow in a poor nutritional state. The offspring of rats which had adrenalectomy between twenty-five and fifty days before parturition are normal. In relation to control animals, the weight of the adrenals in the offspring of recently adrenalectomized rats is diminished. The injection of adrenotrophine in pregnant rats causes hypertrophy of the adrenals of the pregnant animals but not of the offspring rats. Parturition is difficult for rats treated with the adrenotrophine and the fetuses die. The injection of desoxicorticosterone in pregnant rats prolongs pregnancy, the fetuses are abnormally grown, and parturition is difficult. The injection has no effect on the adrenals of the offspring.

Effect of Alloxan on Langerhans Islands of Rats

Dr. Arturo di Pietro recently reported results of experiments to the Sociedad Argentina de Biología. Eight rats had intraperitoneal inoculation of alloxan in different doses. The animals were killed at an interval of hours different for each animal for examination of the pancreas and the Langerhans islands. It appears in the literature that, when alloxan is intravenously given, microscopic changes of the pancreas and the Langerhans islands are observable within five minutes to one hour after the injection. The main changes consist of coagulation necrosis of the beta cells of the islands, whereas the alpha cells of the acinous tissue remain well preserved. The same changes are observed twenty-four hours after intraperitoneal injection. Progressive proliferation in the intercalary ducts and the cells of the central portions of the acini starts within seventy-two hours. Atrophy of the islands and degeneration of the beta cells follow. Hyperplasia of the ducts of the islands starts after abatement of the processes of cellular destruction and proliferation, with consequent nodular formation in the ducts and stimulation of the formation of regenerated alpha and beta cells. The former persist in regenerated islands, whereas the latter become necrotic.

Medical Graduates in Colombia

A plan of work to be followed by physicians during the first year after graduation was recently established in Colombia. The aim of this plan is to appoint physicians immediately after graduation to carry on medical work for one year in towns and zones far from the university centers (Bogota, Medellin and Cartagena). In these remote zones and towns the sanitary conditions are unsatisfactory and the number of physicians is small. The physicians will carry on medical work as well as biologic, demographic and epidemiologic studies. The latter will include physical geography, demography, birth rate, death rate, disease rate, general condition of sanitation in the given zone, nutrition, hygiene and economical status of the people, food and kind of salt consumed, social insurance and industrial diseases. The physicians will give with their final report after one year of work in a given zone their own suggestions for improvement of the people and of the living conditions. The physicians appointed will have previously an intensive course on elemental epidemiology and biostatistics. The foregoing plan is already established in Haiti, Mexico and Brazil with satisfactory results.

Experimental Diabetes in Relation to Sex

Dr. Virgilio G. Foglia of Buenos Aires, in a paper read before the Sociedad Argentina de Biologia, described the course of diabetes in subtotal depancreatized rats with loss of 90 or 95 per cent of the whole pancreas. Diabetic hyperglycemia appears in 88 per cent of male rats and in 40 per cent of female animals. The death rate during the first year after subtotal pancreatectomy is higher in the male than in the female. Hyperglycemia in male rats appears early after pancreatectomy and is of long duration. The results of the experiments seem to indicate an antidiabetic role of the ovary.

Brief Items

The Associación Argentina de Radiólogos was recently organized. Drs. Jose Guardado and Jose P. Uslenghi are the president and secretary, respectively, of the association.

A permanent committee of the pharmacopeia was recently established. The functions of the committee include the study of the Argentine pharmacopeia, biology and pharmacology. The committee will publish a national formulary.

Dr. Bernardo A. Houssay, the head of the Institute of Physiology of the Faculty of Medicine of the University of Buenos Aires, was awarded the 1945 Charles Mickle prize of the University of Toronto.

Dr. Jose Arce of the Faculty of Medicine of the University of Buenos Aires was recently appointed ambassador of Argentina to China.

BRAZIL

(From Our Regular Correspondent)

São Paulo, Dec. 6, 1945.

The Faculty of Hygiene and Public Health of São Paulo

On November 30 the Faculdade de Higiene e Saude Publica of the University of São Paulo was installed under the presidency of Prof. Paul Leitão da Cunha, minister of education and public health. The elevation of the old and well known Instituto de Higiene de São Paulo to the status of a university is one of the most important accomplishments of the government of the state of São Paulo under the supervision of the rector of the University of São Paulo, Professor Jorge Americano.

Among the different courses given in the Escola de Higiene e Saude Pública are public health courses for doctors and teachers, courses for technicians in public health laboratories and courses in dietetics. In July of this year Dr. Fernando Costa signed a decree forming the Institute of Hygiene and the faculty. The following professors constitute his first faculty: Geraldo H. de Paula Souza, Pedro Egidio de Oliveira Carvalho, Lucas de Assunção, Alexandre Wancolle, Francisco Borges Vieira, Francisco Antônio Cardoso, Benjamin Alves Ribeiro, Paulo Cesar de Azevedo Antunes, Rafael de Paula Souza, José Maria Gomes, Alvaro Guimarães Filho, Pedro de Alcântara Marcondes Machado, João Alves Meira, Vicente de Sampaio Lara, João Lane and Rubens Azzi Leal.

Brief Items

The São Paulo Society of the History of Medicine held a special meeting to honor the late Professor João Alves de Lima, whose distinguished services as a surgeon were emphasized by Dr. Sabastião Hermeto Jr. At the same meeting Dr. Flaminio Favero, professor of forensic medicine at the University of São Paulo, read a paper on "The Prohibition of the Use of the Blood among the People of Israel."

Dr. Euryclides J. Zerbini, associate professor of surgery at the University of São Paulo and surgeon of the Santa Casa Hospital, recently returned from the United States, where he spent some time as a guest of Harvard University.

Dr. Angel Roffo, professor at the University of Buenos Aires and director of the Experimental Cancer Institute of that city, spent a few days in São Paulo, where he gave a lecture on "Civilization and Cancer" at the medical center of the university. Dr. Roffo was made a doctor honoris causa by the São Paulo University.

Marriages

Dean Stephen Fleming, Minneapolis, to Miss Elizabeth M. L. Elliott of Thirlestane, Lauder, Scotland, recently.

John Dallas Hallahan, Lansdowne, Pa., to Miss Marion Elizabeth Laskey of Mount Airy, October 30.

A. C. Whittington, Bossier, La., to Miss Jimmie Evans of Farmerville, Texas, October 19.

Stephen Mayka to Miss Mary Jane LaIuppa, both of Rochester, N. Y., December 29.

Daniel Louis Fink to Miss Carroll Louise Shapiro, both of Minneapolis, November 18.

Maurice Nolan Bingham to Miss Virginia Ruth Watson, both of Seattle, October 19.

Robert G. Cook, Toledo, Ohio, to Miss Sarah Louise Sexton of Chillicothe, December 1.

Jack Greenfield, Cleveland, to Miss Janice Elrod of Rutherford, Tenn., January 2.

Harold Rifkin, Brooklyn, to Miss Beatrice Weiss of New York, November 25.

Horace R. Lyons to Mrs. Jeannette Gartz, both of Chicago, January 4.

Correspondence

PHYSICIANS NEEDED FOR MEDICAL MISSIONS

To the Editor:—With the return of large numbers of doctors and nurses from the armed forces—Army, Navy and Air Forces—there must be numbers of men and women ready to launch out in new fields of challenging, often arduous, service.

Lying on my desk today are many calls for doctors and nurses from overseas hospitals in Latin America and Africa, in Asia and the islands of the Pacific. Every sort of person is wanted—physicians, surgeons, medical teachers, research workers, health workers, nurses, expert dentists. So many of our fighting doctors and nurses have seen what Christian missions, both Catholic and Protestant, have meant to remote parts of the world that they must feel an urge to take part in the new health outreach. The numberless times our soldiers and sailors were rescued, whether in the islands of the Pacific or China or Africa, from almost certain death, make one realize what the influence of the Christian world mission has been.

The Christian Medical Council for Overseas Work is organized to answer questions that doctors and nurses may wish to ask as to place and conditions of service, as to the type of work involved and as to possibilities for further study and adequate preparation for careers as medical missionaries.

This letter goes out through you and The Journal to any whose attention may be arrested by our call. This office exists to bring men and women who are eager to serve overseas into touch with the medical and nursing opportunities that are waiting. We shall be glad to write, or to interview, any who will respond.

Douglas N. Forman, M.D.
Edward H. Hume, M.D.
Christian Medical Council for Overseas Work,
156 Fifth Ave., New York 10.

REVIEW OF BRADFORD AND SPURLING "INTERVERTEBRAL DISC"

To the Editor:—I have just read in the Dec. 15, 1945 issue of The Journal the review of the book by Drs. F. Keith Bradford and R. Glenn Spurling on the Intervertebral Disc, with Special Reference to Rupture of the Annulus Fibrosus with Herniation of the Nucleus Pulposus. In my opinion this review in its entirety is an unjustified and unscientific attack.

Although the review is not signed, the identity of the reviewer is perfectly evident to any one familiar with the history and literature of intervertebral disk surgery. Those readers not familiar with the history and literature of the intervertebral disk will unfortunately be led to accept it at its face value. The conservative approach of this book to diagnosis and treatment coincides with the opinions of almost all the neurosurgeons and orthopedic surgeons who have had wide experience with this condition and is in sharp contrast to the dogmatic, extravagant and unproved claims made by the reviewer as, for example, that "recent advances have completely transformed the field, both in diagnosis and treatment, to one of accuracy and certainty," as well as his unwarranted opinions regarding "concealed disks" and his dogmatic statements regarding fusion.

R. Arnold Griswold, M.D., Louisville, Ky.
Professor and Head of Department of Surgery,
University of Louisville School of Medicine.

(Comment.—Books received for review are submitted by the editor to physicians who have done work in the field and who are believed to be competent to express an opinion. Every possible effort is made to avoid the selection of reviewers who might have personal animus. Efforts are also made to avoid the selection of reviewers who would be personally biased in favor of an author. In other words, The Journal seeks critical reviews, not eulogies or malicious attacks. Reviews are published unsigned because it has been found impossible to obtain objective critical reviews with the signature of the reviewer.—Ed.)

TREATMENT OF TETANUS

To the Editor:—These are some personal observations on the treatment of active tetanus. After the fall of Okinawa and the surrender of many Japanese there were many wounded with active tetanus. They all had complete trismus, many with opistotonos, a few in coma.

Our treatment at first consisted in giving tetanus antitoxin intraspinally, intravenously and intramuscularly. The routine consisted of once daily intraspinal and intravenous administrations and a four hour intramuscular sequence. There occurred no change in the clinical state, and after ten days of this treatment without progress we tried the effect of penicillin.

The penicillin was given by once daily intraspinal and intravenous injection of 40,000 units and a four hourly intramuscular injection of 20,000 units. The improvement and eventual recovery following the institution of penicillin therapy was very impressive and warrants further investigation.

Harry L. Margulies, M.D., New York.

BENJAMIN RUSH—FIRST AMERICAN PSYCHIATRIST

To the Editor:—I have read with interest in the December 22 issue of The Journal the comment on page 1170 on Benjamin Rush, M.D. Benjamin Rush was a great man and he has many admirers. There was one claim to fame which was omitted from this little historical note, however; namely, that Rush was the author of the first systematic work on mental disorders published in this country (Medical Inquiries and Observations upon Diseases of the Mind) in 1812. The portrait of Benjamin Rush adorns the seal of the American Psychiatric Association, since in many ways he is properly looked on as the first American psychiatrist. His statue on the grounds of the old Naval Hospital in Washington bears on one side of the base the inscription "The first American alienist."

Winfred Overholser, M.D., Washington, D. C.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in The Journal, Jan. 26, page 239.

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Parts I and II. Various Centers, Feb. 4-6. Part III. Various Centers, March. Exec. Sec., Mr. E. S. Elwood, 225 S. Fifteenth St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Dermatology & Syphilology: *Written. Group B.* April 22. *Oral. Group A and B.* June 6-8. Final date for filing application is March 1. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

American Board of Internal Medicine: *Oral.* Philadelphia, May 9-11. Final date for filing application is March 15. San Francisco, June 27-29. Final date for filing application is April 15. Asst. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

American Board of Ophthalmology: Chicago, Oct. 9-12. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

American Board of Otolaryngology: Chicago, May 22-25. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

American Board of Pathology: Chicago, March 5-6. Final date for filing application is Feb. 10. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

American Board of Psychiatry & Neurology: Chicago, May 24-25. Final date for filing application is February 1946. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N. W., Washington 6, D. C.

American Board of Urology: *Oral.* Chicago, February 1947. Final date for filing application is Nov. 15. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Cosmetology: Loss of Hair Resulting from Negligence of Beauty Operator.—This is an action to recover damages for personal injuries alleged to have resulted from the negligent acts of a beauty operator employed by the defendant. From a verdict in favor of the plaintiff and an order denying the defendant's motion for a directed verdict in his favor, the defendant appealed to the Supreme Judicial Court of Massachusetts.

The defendant was the proprietor of the Kilby Beauty Shop, of which the plaintiff had been a customer for over nine years, and on March 13, 1943 the plaintiff went to the shop by appointment to have her hair dressed by a "heat wave" with the electrical appliance that had been used on other occasions in performing such a service for her. When she arrived, a beauty operator in the employ of the defendant informed her that they had a new "no heat cold wave" which she recommended the plaintiff try. The plaintiff replied that she would prefer the "heat wave" but after some discussion consented to the use of this newer and more expensive method. It appeared from the evidence that the previous February the operator had attended a demonstration of the cold wave process at the place of business in Boston of the distributor of the preparation which was later used on the plaintiff's hair and that an order for the preparation was placed with the distributor. When the order was filled it was found to consist of four different solutions, one for fine hair, one for coarse hair, one for medium hair and one for overbleached hair. After obtaining the plaintiff's consent, the operator arranged her hair, which was abundant and of fine texture, on different spools and applied a liquid substance by patting it on the hair. During this process the plaintiff informed the operator that her head felt "numb and cold," but the operator replied that "that was the general result of the preparation." The operator later admitted, however, that this was the first time she had used the preparation. The process took about three hours and at its conclusion the operator held up her hands and said that "her hands were all split from the acid that was used and she had to go out and tape her fingers one at a time." About five days after the treatment had been given, the plaintiff ran her hand through her hair and "it came right out by the roots, in bunches." She returned to the shop and asked the operator whether or not the defendant had been informed of the circumstances. The operator replied that he had. Defendant then came into the shop and in his presence the operator stated "We used the wrong solution. . . . We had three solutions and we used the wrong one on your hair." The defendant replied "All right, we will give you some Breck shampoos" and "it will take care of it." The plaintiff then received a Breck shampoo, in the process of which her hair came out in "good sized bunches" so the "top of her head was perfectly bald." No charge was made for this shampoo. The plaintiff's hair kept falling out for five or six weeks and the bald spots on her scalp existed for about a year. In April following this treatment the plaintiff consulted a physician, who administered "lamp treatments" at different periods up to September, and new hairs were then just commencing to come in on the top of the plaintiff's head. Following the plaintiff's treatment, the operator called at the office of the distributor from whom the preparation had been received and as a result a representative called on her and told her not to use any more of the solution for fine texture hair. She used none thereafter.

The court said that the defendant was bound to exercise the ordinary skill and ability of persons engaged in the hair dressing business in Boston. On all the evidence, continued the court, the jury could properly have found that the preparation used by the operator had not been used by her before but that, when warned by the plaintiff that her head felt numb and cold, the operator nevertheless stated that that was the general result of the preparation; that on the conclusion of the work the operator's hands were split and bleeding as a result of the "acid" in the preparation; that in the presence of the defendant, who did not demur, the operator subsequently admitted that she had used the wrong solution. Furthermore, said the court, the jury could properly have found that the negligence of the defendant in the use of the wrong and harmful solution was the cause of the plaintiff's injuries. The jury findings being sustained by the evidence, the defendant's exceptions were accordingly overruled, and, in effect, the plaintiff's verdict affirmed.—*Cowhig v. Cafarelli, 63 N. E. (2d) 347 (Mass., 1945).*

Privileged Communications: What Action of the Patient Constitutes Waiver of Privilege.—The plaintiff sued to recover damages for injuries sustained when he fell through a trap door in the public sidewalk adjacent to the defendant's store. The defendant used this trap door for the purpose of receiving merchandise into its store basement. From a verdict and judgment in favor of the plaintiff, the defendant appealed to the Supreme Court of Utah.

The evidence showed that the opening in the sidewalk was in the shadow of an awning maintained by the defendant to shade its store windows, and that the plaintiff had impaired eyesight, but that he could have seen the trap door if he "had looked right down." Whether he used the requisite degree of care for his own safety was a jury question which was resolved in favor of the plaintiff. In asking for a reversal, the defendant contended, among other grounds, that the trial court erred in its ruling on the admissibility of the testimony of two physicians. It appeared from the evidence that a Dr. Dumke had attended the plaintiff when he was first taken to the hospital after the accident and that another physician, Dr. West, had taken various x-ray pictures of the plaintiff's back and skull. These pictures were taken at the request of Dr. Dumke to assist in his treatment of the plaintiff. At the trial the defendant attempted to prove by these two doctors that the x-ray pictures did not show any injury to the bone in the plaintiff's back but disclosed a pronounced arthritic condition which could not have developed as a result of this injury. On objection of the plaintiff, the proffered proof was rejected.

Section 104-49-3 (4), U. C. A. 1943, provides:

> A physician or surgeon cannot, without the consent of his patient, be examined, in a civil action, as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient.

The defendant did not contend that this section was inapplicable, but it did contend that the plaintiff, by testifying concerning the nature and extent of his injuries, waived the privilege provided for by the statute.

We have consistently held, said the court, that the privilege given by section 104-49-3 (4) is personal to the patient and may be waived. In this case, however, the plaintiff did not testify concerning anything which either Dr. Dumke or Dr. West told him nor did he give details concerning the mode of treatment. The plaintiff did not by his own testimony, therefore, waive the privilege. Furthermore, the use by the plaintiff of Dr. Kerr, another physician, as a witness on his behalf did not constitute a waiver. Dr. Kerr was subject to cross examination by the defendant. The x-ray pictures which he testified that he took and which he identified for the court were admitted in evidence. Dr. Dumke and Dr. West were both permitted to see these pictures and to testify in full as to what the pictures disclosed. The court therefore held that while a patient cannot testify concerning what was said and done by his physician in the treatment of the injuries which are subject to the litigation and then close the physician's mouth by claiming privilege, no such effort was made by the plaintiff in this case, and it therefore held that there was no error in refusing to admit the proffered testimony of Drs. Dumke and West. Judgment for the plaintiff was accordingly affirmed.—*Clawson v. Walgreen Drug Company, 162 P. (2d) 759 (Utah, 1945).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

54:329-436 (Oct.) 1945

Differential Diagnosis of Tuberculosis in Joints of Extremities. R. W. Lewis.—p. 329.

Internal Derangements of Knee Joint: Diagnostic Scope of Soft Tissue Roentgen Examinations and Vacuum Technic Demonstration of Menisci. J. Gershon-Cohen.—p. 338.

Post-Traumatic Para-Articular Calcifications and Ossifications of Ankle. A. D. Piatt.—p. 348.

Transitional Epithelial Cell Carcinoma of Nasopharynx. J. E. Whiteleather.—p. 357.

Calcification in Ductus Arteriosus. A. E. Childe and Eleanor R. Mackenzie.—p. 370.

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Contrast Roentgenography of Pneumatic Cells of Temporal Bone. M. Unger.—p. 384.

Multiple March Fractures: Staticodynamic Effect. P. J. Delano and L. V. Capek.—p. 389.

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Analysis of Physical Factors Controlling Diagnostic Quality of Roentgen Images: II. Maximum Resolving Power and Resolution Coefficient. R. H. Morgan.—p. 395.

Notes on Use of Protective Glass in Photofluorographic Equipment. R. H. Morgan and I. Lewis.—p. 403.

American Journal of Tropical Medicine, Baltimore

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Difficulties Arising in Experimental Propagation of Falciparum Malaria. M. F. Boyd.—p. 293.

*Employment of Quinacrine Hydrochloride in Prevention of Malaria Infections. M. F. Boyd and S. F. Kitchen.—p. 307.

*Observations on Transmissibility of Strains of Plasmodium Vivax from Pacific War Areas by Anopheles Quadrimaculatus. R. B. Watson.—p. 315.

Malaria in Amazon Valley of Brazil During 1942 and 1943. O. R. Causey and G. B. Mello.—p. 323.

Persistence of Yellow Fever Virus in Mosquitoes After Death of Insect. Mary B. Waddell.—p. 329.

Effect of Prolonged Storage of Sera on Yellow Fever Protection Tests. J. C. Bugher.—p. 333.

Relapsing Fever in Denton County, Texas: Report on Finding the Tick Ornithodorus Turicata Naturally Infected. C. L. Wisseman Jr.—p. 339.

Early Results of Treatment of African Trypanosomiasis with Two New Arsenical Preparations (Melarsen Oxide and 70A): Preliminary Report. D. Weinman and K. Franz.—p. 343.

Inquiry into Growth Factor or Factors of Certain Blood and Tissue Flagellates. H. A. Senekjie and Ruth A. Lewis.—p. 345.

Rodents, Rabbits and Tularemia in North America: Some Zoologic and Epidemiologic Considerations. W. L. Jellison and R. R. Parker.—p. 349.

Clinical Cure of Madura Foot. J. T. Peters.—p. 363.

Acid-Ether Centrifugation and Zinc Sulfate Flotation Technics as Methods for Recovery of Eggs of Schistosoma Mansoni. T. H. Weller and G. J. Dammin, with technical assistance of Katherine Patterson and E. L. Harwood.—p. 367.

Comparative Studies on Enterozoic Parasite Ova and Cyst Concentrating Procedures. R. L. Brown.—p. 375.

Quinacrine Hydrochloride in Malaria Prevention.—Boyd and Kitchen record experiments performed to ascertain the degree of protection against malaria afforded by various dosages of quinacrine hydrochloride (atabrine) when administered to patients inoculated with one or more species of malaria parasites at varying levels of inoculation intensity. Plasmodium vivax and Plasmodium falciparum react differently when inoculated into white patients routinely receiving quinacrine. The administration of 0.1 Gm. six days a week continued during the period of exposure has afforded complete protection against the falciparum infection but has not protected against a vivax infection. Even materially lower dosages appear in some instances to have protected against the falciparum infection and in the instances in which the infection became patent appear to have exerted a therapeutic effect before the onset of clinical activity. When the period of administration closely coincides with the time of exposure, doses of 0.1 Gm. a day for six days a week are inadequate to protect against a vivax infection. Even when the period over which these doses are given is extended to at least two weeks before and two weeks subsequent to the time of exposure, vivax infections later become clinically active, although exhibiting a more extended incubation period. Since vivax infections may, even without suppressive therapy, sometimes present protracted incubation periods approaching a year in duration, it is likely that a high proportion of persons who have received suppressive therapy will also finally experience clinically active vivax malaria after protracted incubation periods.

Transmissibility of Strains of Plasmodium Vivax.—From soldiers who had presumably acquired their infections in Pacific war areas, six strains of Plasmodium vivax were isolated by transfer of blood to patients who were candidates for malaria therapy. The clinical and parasitologic characteristics of the induced infections were not unlike those of infections with the McCoy strain of P. vivax, the strain of reference used throughout the study. Some of the patients with known or probable histories of former vivax infections demonstrated considerable immunity to the Pacific strain infections, 4 patients being refractory. When gametocytemia of these induced infections seemed to favor mosquito infection, Anopheles quadrimaculatus mosquitoes were fed. Subsequent to a minimum incubation period of seventeen days, these mosquitoes were examined for sporozoites. Salivary gland infections were demonstrated in mosquitoes fed on patients with infections with three of the six strains. Sporozoite transmission of these three strains was accomplished. At least some of the vivax strains from the Pacific war area are capable of being transmitted by A. quadrimaculatus.

Archives of Dermatology and Syphilology, Chicago

52:147-220 (Sept.) 1945

*Intensive Arsenotherapy of Early Syphilis. L. W. Shaffer.—p. 147.

Intensive Treatment of Early Syphilis with Oxophenarsine Hydrochloride by Multiple Injections. E. J. Trow and H. A. Dixon.—p. 155.

Onychomycosis and Dermatomycosis Caused by Trichophyton Rubrum and Aspergillus Nidulans. E. S. Bereston and W. S. Waring.—p. 162.

*Undecylenic Acid in Treatment of Dermatomycosis. A. L. Shapiro and S. Rothman.—p. 166.

Polycythemia with Unusual Eruption. A. Strickler.—p. 172.

Creeping Eruption: Results of Treatment with Fuadin. F. A. Dolce and J. E. Franklin.—p. 174.

Xeroderma Pigmentosum: Additional Notes on 6 Cases of Dr. Mayrand and Dr. Gaumond. Madge T. Macklin.—p. 176.

Treatment of Ichthyosis. H. H. Gordon.—p. 178.

Colloid Degeneration of Skin (Colloid Milium): Report of Case, with Observations on Ascorbic Acid Therapy. S. S. Robinson and S. Tasker.—p. 180.

Arsenotherapy of Early Syphilis.—A group of 210 patients with early primary syphilis were given three injections of oxophenarsine hydrochloride weekly for a total of twenty injections (six and two-thirds weeks). A single dose varied from 0.05 to 0.07 Gm., depending on weight. This course was followed by eight injections of bismuth salicylate 0.2 Gm. given twice weekly for four weeks. This course was immediately followed by ten arsenical treatments given twice weekly for five weeks. Only 63 of the 210 patients completed the treatment with satisfactory regularity and remained under observation for at least six months. Fifty-six of these (89 per cent) proved negative clinically and serologically, and 5 patients (8 per cent) proved seroresistant; there was clinical relapse in 2 (3 per cent) and serologic relapse in none. A total of 352 patients with syphilis were given three injections of oxophenarsine hydrochloride and one injection of bismuth subsalicylate weekly for eight weeks according to the Eagle plan. Only 109 patients completed the treatment in a satisfactory manner and have been followed for six to seventeen months. Thirty-three of the 109 were patients with early primary syphilis. It is desirable in appraising results to classify the types of early syphilis. Prognosis depends on the duration of the disease. Six of the 33 patients were classified as seronegative, and all proved negative clinically and serologically. Of 27 classified seropositive 23

(85.2 per cent) proved negative clinically and serologically. One seropositive patient (3.7 per cent) proved seroresistant, and 3 seropositive patients (11.1 per cent) were considered questionable. Failures have not occurred with any type of intensive therapy used for any patient with seronegative primary syphilis.

Undecylenic Acid in Dermatomycosis.—A new fungicidal preparation containing 20 per cent zinc undecylenate and 5 per cent undecylenic acid in a vanishing emulsion base (p_H 6.5) was tested clinically by Shapiro and Rothman in 150 patients with dermatomycosis presenting positive microscopic and/or cultural evidence of fungi. The pathogenic fungi grown on culture in this group were identified as Tricophyton gypseum, Tricophyton purpureum, Epidermophyton inguinale and Monilia. Complete clinical cure could be achieved with the undecylenate preparation within four weeks for the great majority of patients (86 per cent) with dermatomycosis pedis, regardless of the causative fungi. Relapses did not occur if treatment was continued. Comparative experiments have shown that the new preparation is only slightly superior to sulfur-salicylic acid preparations, but the undecylenate ointment is less irritating than any other preparation of similar fungicidal strength. Treatment with undecylenate ointment of patients with extended vesiculation, erosions, rhagades and edema of the feet can be employed without danger of irritation. In treatment of tinea cruris and tinea axillaris complete clinical cure was readily accomplished with the undecylenate preparation, regardless of the causative agent. In this group complete absence of any irritating action was noted as particularly important because of the pronounced irritability of large flexor surfaces. Results against tinea circinata so far are not entirely satisfactory. Infection of the glabrous skin with Microsporon audouini in adults and children responded well. In addition, 3 of 11 patients with tinea capitis caused by M. audouini were cured by the undecylenate ointment, so that x-ray epilation was not necessary. The results were not encouraging in onychomycosis.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

4:491-612 (Nov.) 1945

Psychosomatic Medicine on General Medical Wards. W. C. Menninger. —p. 545.
Tropical Psychiatry. P. D. MacLean, M. Moore and D. Crocker. —p. 551.
Eye and Ear Sequelae of Scrub Typhus Fever. L. R. Dame.—p. 554.
Management of Suprapubic Cystostomy. J. H. Semans.—p. 560.
Early Treatment of Extremity Wounds. H. A. Sofield.—p. 562.
Ear Molds for Hearing Aid Appliances. G. A. McCracken.—p. 567.
Water Supply at a Base Unit in China. C. Bovée, J. J. Sachs and J. B. Montgomery.—p. 571.
*Epidemic of Acute Pharyngitis Due to Hemolytic Streptococci. J. T. Pewters and L. T. Bullock.—p. 579.
Venereal Disease Control Interview. E. C. Van Horn and O. L. Sawey. —p. 582.
Reconditioning Program in an Overseas General Hospital. P. Kunkel. —p. 586.

Epidemic Pharyngitis Due to Hemolytic Streptococci.—Pewters and Bullock report an epidemic of acute pharyngitis and tonsillitis which occurred at an army air field. One hundred and fourteen cases were admitted to the station hospital during an eight day period. The onset was rapid, starting with sore throat, fever and malaise. The severe sore throat was accompanied by dysphagia and severe prostration in many cases. The temperature was usually between 101 and 103 F. and ranged between 100 and 105 F. Dusky red edema of the tonsils, uvula and pharynx and small yellow spots of exudate on the tonsils or pharyngeal wall were present. The submaxillary lymph nodes were usually enlarged and tender. The fever subsided by lysis in two or three days, and the sore throat gradually improved. Throat cultures were taken from 66 patients. About one half of these were taken after varying amounts of sulfadiazine had been administered. Fifty-five of the cultures were positive for group A hemolytic streptococci. All patients were treated with bed rest, forced fluids and sulfadiazine. Sulfadiazine 2.5 Gm. was given initially, followed by 1 Gm. every four hours. Sedatives were used as needed to control pain and dysphagia. Recovery was rapid. Three patients developed mild injection of the eardrum, which subsided without drainage or disturbance in hearing. All patients were examined weekly for six weeks. After three months rheumatic fever or nephritis had not developed in any patient.

Connecticut State Medical Journal, Hartford

9:755-824 (Oct.) 1945

Hospitals and Doctors Review Blue Cross Plans (Hospital Service Insurance). L. H. Garland.—p. 757.
Restoring Industrially Injured. S. L. Hanson.—p. 759.
Nutritional Edema. A. O. Wilensky.—p. 761.
Grip Syndrome. D. J. Knowlton.—p. 763.
Diagnosis and Treatment of Uterine and Pelvic Endometriosis. A. H. Morse.—p. 768.
Case of Incarcerated Uterus Successfully Treated in 1808. H. Thoms. —p. 771.

9:825-910 (Nov.) 1945

Address of Major General Paul R. Hawley.—p. 827.
Medical Care of Naval Veteran. H. H. Montgomery.—p. 831.
Psychiatric Aspects of Veterans' Reemployment. C. C. Burlingame. —p. 836.
Tuberculosis as an Aftermath of the War. P. S. Phelps.—p. 839.
Cardiovascular Syphilis: Approach to Early Clinical Recognition and Early Treatment. M. Dressler.—p. 844.
Relation of Fluorine to Dental Caries. C. J. Robbins.—p. 855.
Malaria and the Returning Serviceman. M. Tager.—p. 858.

Epidemiol. Information Bulletin, Washington, D. C.

1:759-800 (Oct. 31) 1945

Epidemic Diseases in Japan. K. Stowman.—p. 759.
Reduction of Infectious Diseases at Manila.—p. 765.
Current Reports on the Prevalence of Certain Diseases.—p. 767.

Georgia Medical Association Journal, Atlanta

34:171-190 (Sept.) 1945

Multiple and Solitary Renal Cysts: Clinical and Pathologic Aspects. S. J. Sinkoe.—p. 171.

34:191-212 (Oct.) 1945

How Good is Navy Medical Care in World War II? J. C. Norris. —p. 191.
Angina Pectoris. J. L. Richardson.—p. 195.
Recent Advances in Treatment of Respiratory Diseases in Infants and Children. W. W. Anderson.—p. 198.
Early Congenital Syphilis: Diagnostic Criteria and Penicillin Therapy. E. R. Watson.—p. 200.

Journal of Bacteriology, Baltimore

50:131-240 (Aug.) 1945

Burst Size Distribution in Growth of Bacterial Viruses (Bacteriophages). M. Delbrück.—p. 131.
Effects of Specific Antisera on Growth of Bacterial Viruses (Bacteriophages). M. Delbrück.—p. 137.
Interference Between Bacterial Viruses: III. Mutual Exclusion Effect and Depressor Effect. M. Delbrück.—p. 151.
Observations of Hemolytic Escherichia Coli on Blood Agar and Eosin Methylene Blue Agar. W. L. Loving.—p. 171.
Further Studies on Effects of Spleen Extract on Bacteria. L. G. Nutini, C. W. Kreke and M. P. Schroeder.—p. 177.
Penicillin Assay and Its Control Chart Analysis. Lila F. Knudsen and W. A. Randall.—p. 187.
Significance of Sodium Chloride in Studies of Staphylococci. G. H. Chapman.—p. 201.
Effect of Penicillin on Infection of Guinea Pigs with Corynebacterium Diphtheriae. R. M. Young and G. M. Mood.—p. 205.
Occurrence of Bacillus Botulinus Types A and B in Accidental Wounds. I. C. Hall.—p. 213.
Transformation of Streptococcus Lactis R Factor to "Folic Acid" by Resting Cell Suspensions of Enterococci. J. L. Stokes and Alma Larsen.—p. 219.
*Human Food Poisoning Due to Growth of Clostridium Perfringens (C. Welchi) in Freshly Cooked Chicken: Preliminary Note. L. S. McClung.—p. 229.

Food Poisoning Due to Clostridium Perfringens.—The majority of the cases which have come to McClung's attention resulted from food eaten in a large public cafeteria. The symptoms included nausea, occasionally vomiting, intestinal cramps and severe diarrhea. In the majority of cases the symptoms began eight to twelve hours after the meal, with the diarrhea continuing for about twelve hours. Symptoms developed after eating chicken which was cooked one day and served on the following day. The chickens were cooked by steam under low pressure for three hours; they were then removed from the broth, which was saved for later use, and boned. Creamed chicken, croquettes prepared from the precooked chicken and similar dishes have been implicated and confirmed by bacteriologic evidence. The spoilage could be detected in many cases by the appearance of gas bubbles in liquid or semiliquid samples. In all samples of broth, but not necessarily with samples like croquettes, gram stains revealed heavy contamination with gram-positive rod forms which gave cultural and other reactions of

Clostridium perfringens. It seems reasonable to suppose that C. perfringens may be involved in the toxic spoilage of foods other than chicken and may have been overlooked. It is suggested that in the future those who are investigating outbreaks include the inoculation of suitable anaerobic mediums. In view of the ubiquitous distribution of the organism, its mere demonstration in a food may not necessarily mean that the food was contaminated sufficiently for this species to be the offending organism.

Journal of Bone and Joint Surgery, Boston

27:547-784 (Oct.) 1945. Partial Index

*Surgical Obliteration of Bone Cavities Following Traumatic Osteomyelitis. M. P. Knight and G. O. Wood.—p. 547.

Treatment of Benign Giant Cell Tumor in Lower Third of Femur by Curettage and "Telescoping" Fragments of Bone. R. W. Johnson Jr. and J. Lyford.—p. 557.

*Local Chemotherapy with Primary Closure of Septic Wounds by Means of Drainage and Irrigation Cannulae. M. N. Smith-Petersen, Carroll B. Larson and W. Cochran.—p. 562.

Congenital Absence of Radius: Method of Surgical Correction. D. E. Starr.—p. 572.

Brittain Ischiofemoral Arthrodesis. R. A. Knight and M. M. Bluhm. —p. 578.

Aseptic Necrosis of Astragalus Following Arthrodesing Procedures of Tarsus. F. M. Marek and A. J. Schein.—p. 587.

Difficult Fractures of Neck of Femur Treated with Stud Bolt Screw: Simplification of Technic. F. E. Godoy-Moreira.—p. 595.

Selection of Cases for Arthrotomy of Knee in an Overseas General Hospital: Two Year Follow-Up Study. E. F. Cave, C. R. Rowe and L. B. K. Yee.—p. 603.

Anterior Transposition of Peroneal Nerve for Traction Paralysis. H. Milch.—p. 608.

Acute Ischemia of Anterior Tibial Muscle and Long Extensor Muscles of Toes. C. E. Horn.—p. 615.

Severe War Injuries of Elbow. S. T. Snedecor and W. C. Graham. —p. 623.

Dual Plates for Internal Fixation in Nonunion of Fractures. J. A. Key. —p. 632.

Treatment of Ununited Fractures of Long Bones: Method Combining Grafting and Internal Fixation. T. Horwitz and R. G. Lambert. —p. 637.

Restoration of Muscle Power by Heavy Resistance Exercises. T. L. DeLorme.—p. 645.

Polymorphous Cell Sarcoma, Malignant Phase of Giant Follicle Lymphoma, with Generalized Skeletal Involvement and Multiple Pathologic Fractures: Report of Case. W. E. Kenney.—p. 668.

Spontaneous Bilateral Fracture of Neck of Femur Following Irradiation. C. H. Heyman.—p. 674.

Dislocation of Cervical Spine Treated by Open Reduction. R. J. B. McEwen and J. G. Bickerton.—p. 679.

Sagittal Cleft (Butterfly) Vertebra. F. J. Fischer and R. E. Vandemark.—p. 695.

Gunshot Wound with Osteomyelitic Destruction of Body of Third Cervical Vertebra. C. U. Hauser and D. J. Reagan.—p. 699.

Intra-Articular Osteochondral Fractures as Cause for Internal Derangement of Knee in Adolescents. P. H. Harmon.—p. 703.

Obliteration of Bone Cavities Following Traumatic Osteomyelitis.—Knight and Wood point out that one of the most serious reconstruction problems in war casualties is the treatment of bone cavities associated with loss of skin and soft tissue following infected compound fractures. Especially difficult are large bone defects in the tibia and the femur in the vicinity of the knee. The authors have adopted a procedure which expedites healing and obliterates these cavities in the long bones of the extremities. Their method consists of three stages: (1) adequate sequestrectomy, (2) application of split skin grafts and (3) excision of the initial skin graft, application of bone chips and transfer of a full thickness skin graft. Of 23 cases treated in this manner the wounds in all but 2 have entirely healed. Bone sepsis has been eradicated in all cases and the defects have been eliminated. There has been no sequestration of any of the chips and no roentgenographic evidence of osteomyelitis following the insertion of the bone chips. In the 2 cases in which healing is not complete the bone defects have been eliminated and bony union is solid, but the soft tissue healing is not sound because of error in the skin graft technic, resulting in inadequate blood supply. Careful planning of the full thickness skin grafting will ensure sound healing.

Chemotherapy with Primary Closure of Septic Wounds.—After incision and drainage of an osteomyelitis area, two glass cannulas are inserted, and the wound is closed tightly around them. Rubber tubes are connected to the cannulas, one leading to a bottle of irrigating fluid at the head of the bed, the other to a waste bottle on the floor. At regular intervals irrigation fluid is allowed to flow through the wound until it comes out clear; the rubber tube from the outlet cannula is then clamped off, allowing the irrigation fluid to accumulate in the wound before the rubber tube from the supply bottle is clamped off. Later vitallium cannulas were substituted. Diluted solution of sodium hypochlorite has been used extensively and is often substituted temporarily for other chemotherapeutic agents. Silver pectinate solution has been used in a limited number of cases as a local chemotherapeutic agent but not as an irrigation fluid. Penicillin has been used for the last year. The system of two drainage and irrigation cannulas has been found to be a practical way of introducing the penicillin locally. Smith-Petersen and his associates, after eleven years with local chemotherapy administered through a closed system of cannulas, call attention to several favorable aspects: The almost complete primary closure reduces to a minimum the loss of serum from the granulating surfaces. The infrequency of dressings appeals to the patient and to the surgeon. The time for complete healing of the wound is materially shortened. The scar is linear and level. The postoperative clinical course in the majority of cases treated by this method has been smooth; the temperature chart levels off quickly; the patients are happy and look well. It is not a method with 100 per cent cures. There have been cases with local recurrence of sepsis, but these have been relatively few.

Journal of Experimental Medicine, New York

82:227-296 (Oct.) 1945

Metabolism of Kidney in Experimental Renal Hypertension: II. Concentration of Cytochrome c and Activities of Cytochrome Oxidase and of Succinic Dehydrogenase Systems in Kidney of Dogs with Experimental Renal Hypertension. Inhibitory Effect of Renin and of Kidney Tissue Preparations from Hypertensive Dogs on Respiratory Enzymes. S. B. Raska.—p. 227.

Hereditary Achondroplasia in Rabbit: I. Physical Appearance and General Features. W. H. Brown and Louise Pearce.—p. 241.

Id.: II. Pathologic Aspects. Louise Pearce and W. H. Brown.—p. 261.

Id.: III. Genetic Aspects: General Considerations. Louise Pearce and W. H. Brown.—p. 281.

Journal of Nutrition, Philadelphia

30:225-300 (Oct.) 1945

Physiologic Availability of Vitamins: V. Effect of Copper on Extra Dietary Ascorbic Acid. M. Hochberg, D. Melnick and B. L. Oser. —p. 225.

Id.: VI. Effect of Adsorbents on Thiamine. D. Melnick, M. Hochberg and B. L. Oser.—p. 233.

Effect of Soybean Phosphatides on Vitamin A. Metabolism. C. A. Slanetz and A. Scharf.—p. 239.

Nutritive Value of Distillers' Dried Solubles as Source of Protein. C. W. Hughes and S. M. Hauge.—p. 245.

Calcium Metabolism of Preschool Children. Ellen K. Watson, Elinor W. McGuire, Frieda L. Meyer and Milicent L. Hathaway.—p. 259.

Protein Requirements of Adult Human Subjects in Terms of Protein Contained in Individual Foods and Food Combinations. Mildred Bricker, H. H. Mitchell and Gladys M. Kinsman.—p. 269.

Effects of Light, Trauma, Riboflavin and Ariboflavinosis on Production of Corneal Vascularity and on Healing of Corneal Lesions. O. H. Lowry and O. A. Bessey.—p. 285.

Comparative Effectiveness of Various Iron Compounds in Promoting Iron Retention and Hemoglobin Regeneration by Anemic Rats. S. Freeman and Marie W. Burrill.—p. 293.

New England Journal of Medicine, Boston

233:427-452 (Oct. 11) 1945

The Greeks Had a Word for It. A. Williams.—p. 427.

Influence of Pregnancy on Otosclerosis. R. T. Barton.—p. 433.

Industrial Hygiene. I. R. Tabershaw.—p. 437.

Acute Hemorrhagic Pancreatitis with Widespread Fat Necrosis.—p. 443.

Acute Hemorrhagic Pancreatitis.—p. 445.

233:453-484 (Oct. 18) 1945

*Rehabilitation of Patients Totally Paralyzed Below the Waist, with Special Reference to Making Them Ambulatory and Capable of Earning Their Living: I. Anterior Rhizotomy for Spastic Paraplegia. D. Munro.—p. 453.

*Cobra Venom in Treatment of Angina Pectoris. A. S. Freedberg and J. E. F. Riseman.—p. 462.

Tuberculosis. J. D. Wassersug.—p. 467.

Chronic Ulcerative Colitis. Adenocarcinoma of Hepatic Flexure.—p. 475.

Chronic Ulcerative Colitis and Ileitis; Adenocarcinoma of Colon.—p. 477.

Rehabilitation of Patients Paralyzed Below Waist.—Munro asserts that a patient with a spinal cord or cauda equina injury who is intelligent and cooperative and has the use of the shoulder, arm and hand muscles can be made ambulatory, can have such control of the bladder and bowels as to sleep through the night without either getting up or wetting himself, can carry out ordinary activities throughout the day without soiling himself with feces or having to evacuate his bladder oftener than once every three hours, can lead a normal social life and can earn a living. This paper is the first of a series that describes certain therapeutic procedures that have made the attainment of these end results possible. The author has performed a bilateral dorsolumbar anterior rhizotomy on 10 patients. This bilateral intraspinal division of the anterior roots of the eleventh thoracic through the first sacral spinal nerve is recommended as a means of changing a spastic to a flaccid paraplegia in patients with an anatomic transection of the spinal cord at any point between the second thoracic and the second sacral segment preliminary to making the patients ambulant and to providing them with complete twenty-four hour control of micturition so that they may again become active members of their community and be self supporting. Because this operation is a permanently destructive one, the indications for performing it should never be considered lightly. For the present, at least, it should be strictly limited to patients in whom the spinal cord is anatomically transected and in whom all neural connections between the cut surfaces of the cord have been destroyed.

Cobra Venom in Angina Pectoris.—Freedberg and Riseman studied 12 patients with angina pectoris of coronary arteriosclerotic origin for various lengths of time. During the period of observation the frequency of the attacks in daily life became well known. The amount of work that could be performed under standardized conditions before pain developed had been determined on many occasions. The administration of cobra venom to patients resulted in an increase in the standardized exercise tolerance and in clinical improvement in 7 of the 12 patients studied. This occurred in 4 of 5 patients unresponsive to the usual medication employed in the treatment of angina pectoris. The optimum method of administration was 10 mouse units (1 cc.) three times the first day, followed by one injection daily for seven days; biweekly injections of 1 cc. were then necessary to maintain the effect. If escape from the drug occurred, repetition of the initial course of therapy sometimes produced beneficial effects. No untoward symptoms occurred with the dose recommended. Local pain invariably occurred, but in no case was it severe enough to warrant discontinuance of treatment. Cobra venom does not prevent the electrocardiographic changes associated with exertion in patients with angina pectoris. Its action is therefore not that of coronary vasodilatation.

North Carolina Medical Journal, Winston-Salem

6:397-436 (Sept.) 1945

Early Manifestations of *Filariasis*. J. M. Hayman Jr.—p. 397.
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Hyperinsulinism and Hypoglycemia. A. Papineau.—p. 408.
Management of Diabetic Patient. V. S. Caviness.—p. 412.
Synergistic Effect of Acetone and Alcohol in Production of Symptoms of Coma. C. H. Reid Jr.—p. 416.

6:437-468 (Oct.) 1945

Changing Ideas in Treatment of Pulmonary Tuberculosis. C. H. Cocke. —p. 438.
Peribronchitis. F. M. Hanes.—p. 440.
Some Notes on Practical Use of Digitalis. R. L. McMillan.—p. 442.
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Evolution of Aseptic Principle in Surgery: X. Robert Koch (1843-1910), J. C. Trent.—p. 449.

South Carolina Medical Assn. Journal, Florence

41:246-274 (Oct.) 1945

Treatment of Extensive Second and Third Degree Burns. D. L. Maguire.—p. 246.
Rocky Mountain Spotted Fever or Tick Fever in South Carolina. M. W. Beach and B. O. Ravenel.—p. 249.
Subacute Bacterial Endocarditis in Child: Case. R. H. Chappell.—p. 252.

41:275-308 (Nov.) 1945

Survey of Medical College Expansion: Program and Its Factual Background. K. M. Lynch, J. M. Boone and W. A. Smith.—p. 298.

War Medicine, Chicago

8:137-208 (Sept.) 1945

Minor Psychiatric Reactions in Officers. H. S. Evans and H. F. Ziprick.—p. 137.
Chronic Symptomatology of Combat Neuroses. B. Cohen and R. L. Swank.—p. 143.
*Sodium Amytal Narcosis in Management of Emotional Disorders of Combat Fliers. H. R. Erb and D. D. Bond.—p. 146.
*Emotional Albuminuria in Returned Flying Officers. H. R. Plass. —p. 153.
Asiatic Schistosomiasis: Clinical Features, Sigmoidoscopic Picture and Treatment of Early Infections. A. S. Johnson Jr. and M. G. Berry. —p. 156.
Tsutsugamushi Disease (Scrub Typhus): Clinical Study of 49 Cases. W. L. Anderson and W. M. Wing.—p. 163.
Monilial Pharyngitis. P. A. Tumulty and M. Michael Jr.—p. 167.
Convalescent Care and Rehabilitation of Patients with Spinal Cord Injuries. War Department Technical Bulletin.—p. 199.

Sodium Amytal Narcosis in Emotional Disorders.—Erb and Bond report the results of treatment with prolonged deep sodium amytal narcosis in a total of 311 flying personnel. The patients had early but true combat neuroses and were not men primarily physically fatigued. They all had one or more of the following symptoms: fear of flying or of combat flying, preoccupation with the hazards of combat, insomnia, vivid battle dreams, loss of appetite, irritability, depression, startle reactions, alcoholism, functional vomiting, tremor and, rarely, amnesia. The smallest dose of sodium amytal administered was 1.8 Gm. (27 grains) and the largest 24.6 Gm. (369 grains). The majority of the patients were subjected to a three day period of deep narcosis. Of the 311 men treated, 108 (34.7 per cent) returned to flying duty, 153 (49.2 per cent) returned to ground duty and 50 (16.1 per cent) were returned to the zone of the interior for rehabilitation. The treatment was considered successful in those who returned to combat flying in less than one month after treatment and who performed satisfactorily on more than four missions. This group is represented by 37 patients, or 11.9 per cent of all patients treated. More officers than enlisted men returned to flying duty, and more officers were successful after they had returned. The less severe the emotional reaction, the better the prognosis under this form of therapy. A greater percentage of men returned to flying and a greater percentage were successful when treated within four weeks of the onset of symptoms. In the immediate postnarcotic stage the patient frequently was overwhelmed with aggressive fantasies. The fantasies were often hallucinations concerning one form or another of mutilation and were extremely vivid and brightly colored. The massiveness of the release of aggressive thought is so impressive that its benefit or harm should not be overlooked when one is considering the effects of treatment. The patients who experienced this reaction in its most violent form were those who had rather serious emotional difficulty early in life, whether or not it had been apparent in adulthood.

Emotional Albuminuria in Flying Officers.—In a series of 935 officers returned from combat 49 had albuminuria of variable severity which could not be ascribed to organic disease. Fifteen minutes after withdrawal of blood for a Kahn test 160 of the officers had albumin in the urine. One hundred and eleven of these men had had normal urine before the emotional stimulus of venipuncture. Officers hospitalized for operational fatigue tended slightly to have more frequent and more severe albuminuria than those sent to duty. Plass suggests that such emotional albuminuria should be regarded as one of many signs and symptoms of a person's autonomic activity under conditions of decompensation. The phenomenon is probably less frequently observed in subjects as they become older.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

53:341-378 (Oct.) 1945

Causes for Vaginal Bleeding in Women Over Age of Forty. R. W. Noyes.—p. 341.
Inguinal Herniorrhaphy. E. F. Gooel.—p. 344.
Essentials of Caudal Wall Hernias and Intrasphincteric Hernioplastic Repair of Rectum and Pelvic Floor. C. W. Barrett.—p. 354.
Metastatic Staphylococcal Infection of Gallbladder. R. E. Ottoman and J. W. Baker.—p. 361.
Oil Solutions in Local Anesthesia: Experimental Appraisal. S. R. Truman.—p. 364.
Gastric Adenomas: Pathologic Study. J. H. Rieniets and A. C. Broders. —p. 366.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

18:301-334 (Oct.) 1945

Ankylosing Spondylitis (Symposium). H. Wyatt, R. McWhirter and H. Johnson.—p. 301.
Apical Petrositis X-Ray Appearances of 3 Cases. J. Munk.—p. 309.
*Qualitative and Quantitative Histologic Examination of Biopsy Material from Patients Treated by Radiation for Carcinoma of Cervix Uteri. A. Glücksmann and F. G. Spear.—p. 313.
Case of Rightsided Aortic Arch Associated with Congenital Short Esophagus and Partial Thoracic Stomach. E. R. Williams.—p. 323.
Some Applications of *Nomography* to Radiotherapy. S. B. Osborn. —p. 327.
X-Ray Examination of Hip Joint in Tuberculous Disease, with Special Reference to Localization of Cavities and Tuberculous Foci. F. G. Wood and M. C. Wilkinson.—p. 332.

Cervical Carcinoma.—Glücksmann and Spear applied a quantitative method by which the effects of radiation could be observed during treatment. The individual response to irradiation of 166 carcinomas of the cervix uteri treated since 1938 was assessed by means of a quantitative microscopic examination of serial biopsies. The subsequent clinical findings have confirmed the histologic assessment in the majority of tumors examined, the proportion of agreements increasing with time after treatment. The histologic assessment has therefore a useful prognostic value. A further series of 502 carcinomas of the cervix treated radiologically between 1930 and 1939 was classified on a preirradiation biopsy according to the degree of anaplasia and the results compared with the clinical follow-up, which covered a period of at least five years. In this series it was also found that the response of anaplastic tumors to irradiation tended to be less satisfactory than that of differentiating tumors.

Irish Journal of Medical Science, Dublin

237:579-608 (Sept.) 1945

Infestation and DDT. J. D. MacCormack.—p. 579.
Progress by Trial and Error (Chemistry Before the Twentieth Century). K. C. Bailey.—p. 593.
Case of Lymphogranuloma Venereum. P. A. McNally.—p. 604.

Journal of Mental Science, London

91:267-410 (July) 1945

Psychiatric Developments. A. A. W. Petrie.—p. 267.
Relationship of Electroencephalography to Psychiatry. D. Hill.—p. 281.
Screening Procedure for Selection of Recruits for Psychiatric Interview. D. Curran.—p. 290.
States of Heightened Suggestibility: Narcosis. H. J. Eysenck and W. L. Rees.—p. 301.
Observations in Hypoglycemia: V. Disorders of Speech. E. Stengel and W. Mayer-Gross.—p. 311.
Autonomic Responses in Prefrontal Leukotomy: Preliminary Report. F. Reitman.—p. 318.
Observations on Rorschach Test in 2 Cases of Acute Concussional Head Injury. O. L. Zangwill.—p. 322.
Study of Certain Qualitative Aspects of Problem Solving Behavior in Senile Dementia Patients. Margaret D. Eysenck.—p. 337.
Experiment in Mental Testing During Hypnosis. Gertrude Keir.—p. 346.
Further Studies on Modified Takata Reaction on Cerebrospinal Fluids of Neurologic and Psychiatric Patients. H. H. Fleischhacker.—p. 353.

Proceedings of Royal Society of Medicine, London

38:613-662 (Sept.) 1945. **Partial Index**

Consideration of Functional Disabilities in Orthopedics. W. E. Tucker. —p. 613.
Intramuscular Vascular Patterns in Man. L. B. Bloomfield.—p. 617.
External Operation on Nasal Sinuses. N. Patterson.—p. 622.
Anesthesia for Surgery of Nasal Sinuses. H. W. L. Dale.—p. 624.
Primary War Injuries Involving Nose and Sinuses. N. Canfield. —p. 627.
Lesions of Facial Nerve Due to War Injuries and Their Repair. F. D. Lathrop.—p. 629.
*Cervicofacial Actinomycosis. A. B. MacGregor.—p. 639.

Cervicofacial Actinomycosis.—For years it was believed that workers associated with cattle or horses were more liable to actinomycosis infection than others, and the fact that similar looking organisms could be found on grasses and straw gave further credence to this view. Recent studies have shown that bovine and human strains differ and that the organisms present on vegetation are nonpathogenic for animals or man. Furthermore, anaerobic strains corresponding morphologically and culturally to the pathologic human Actinomyces israeli type can be found in normal mouths. It seems probable therefore that under certain circumstances, e. g. trauma, the organisms normally saprophytic in the mouth become parasitic and the disease manifests itself. This view is supported by the almost invariable history of trauma, e. g. extraction of a tooth or fracture of the mandible, which precedes the onset of the disease. In many cases the condition is not recognized. Patients may present a single abscess under the chin or on the neck or the classic form with multiple sinuses. In the 10 cases reviewed by MacGregor 6 started with a single abscess, though bacteriologic examinations showed the presence of true actinomycosis in these as well as in the remaining 4. Iodine and x-ray therapy have been the most widely used methods of treatment. In this series iodine was not used and x-rays were used on only 2 patients without especial success. Excision of the whole area in 1 localized case was performed without recurrence. One case with a submental abscess following fracture of the mandible was treated by drainage alone, without recurrence. Two patients were treated by injection of a suspension of sulfonamide into the infected area and along the sinuses without conspicuous success. Seven patients, including 1 of the sulfonamide failures, were treated with penicillin applied by means of thin rubber tubes inserted through incisions in the skin. In 4 of these patients the results were successful. The results of penicillin therapy were in agreement with the in vitro penicillin sensitivity, since the strain of organisms present in the failures were found to be much less sensitive than were those in the successfully treated cases.

Acta Medica Scandinavica, Stockholm

122:105-191 (Sept. 26) 1945

*Reaction of Pleura in Primary Tuberculosis of Lung. R. Müller and S. Löfstedt.—p. 105.
V. Excretion of Urinary Waste Products Under Abnormal Conditions, with Special Regard to Tubular Functions. G. Ekehorn.—p. 134.
Cause of Occurrence of Infantile Paralysis at Time of Fall Equinox. *D. Müller.*—p. 170.
Erythema Nodosum Following Treatment with Sulfanilamide Compounds. S. Löfgren.—p. 175.

Pleural Reaction in Primary Tuberculosis.—A primary tuberculous pleurisy develops when primary tuberculosis is at its height. This disorder is to be differentiated from postprimary exudative pleurisy, including the exudative pleurisy which develops within three to six months subsequent to the primary tuberculous infection and from the pleural exudate which is frequently associated with phthisis and miliary tuberculosis. Physical examination fails to demonstrate the pleural exudate, and even a careful roentgenologic examination in the sitting position will fail to disclose comparatively large exudates, which gravitate into the phrenicocostal sinus. Laurell's method, modified by Müller and Löfstedt, facilitates the roentgenologic demonstration of minimal amounts of exudate in the pleural cavity. Investigation on 120 healthy persons revealed that the most suitable projections may be obtained with the rays directed horizontally and by rotating the patient while recumbent on the affected side 20 to 30 degrees backward around his longitudinal axis and by elevating his hip so that the spine forms an angle of about 20 degrees with the horizontal plane. By this method fluid in the pleural cavity was demonstrated in 15 of the 120 examined persons (12.5 per cent). Thoracentesis demonstrated that 3 to 5 cc. of fluid may be disclosed by this roentgenographic technic. In 9 out of 10 patients with primary tuberculosis a pleural exudate was demonstrated on the affected side. The amounts of exudate aspirated by thoracentesis varied between 7 and 175 cc. The largest exudates were found in persons who were examined in the course of the first days after the onset of clinical symptoms. As a rule the exudate was absorbed in two to three weeks; in some cases small residual quantities persisted for a long period. These exudates have a high albumin content and contain a large number of polymorphonuclear cells. Guinea pig inoculation was positive in 2 cases. Demonstration of tubercle bacilli in the pleural exudate establishes the diagnosis of pulmonary tuberculosis even if tubercle bacilli cannot be recovered from the sputum or gastric contents. Determination of the cell content of the pleural exudate is an aid to early and definite differential diagnosis from acute pneumonia, which cannot be made unless the patient is studied for a prolonged period.

Book Notices

Electrotherapy and Light Therapy with the Essentials of Hydrotherapy and Mechanotherapy. By Richard Kovács, M.D., Professor of Physical Therapy, New York Polyclinic Medical School and Hospital, New York. Fifth edition. Cloth. Price, $8.50. Pp. 694, with 353 illustrations. Philadelphia: Lea & Febiger, 1945.

This is a presentation of the various phases of physical medicine with greatest emphasis on electrotherapy and light therapy. The author has revised many sections in order to include the newer concepts of electrophysics, ultraviolet irradiation and exercise and to bring the material in this rapidly changing field up to date. In addition, a special chapter on hypothermy has been added, as well as a glossary with general definitions of electrophysics, mechanotherapy and muscle and nerve action.

In an introductory chapter on physical therapy in the practice of medicine the basis and scope of physical medicine are described briefly. Following this, as was true of earlier editions, the book is divided into sections which deal with specific branches of physical medicine. Part I, on electrophysics, explains the fundamentals of this branch of physics and the generation, conversion and distribution of electricity. Much of this material is similar to that in the fourth edition, and the author again uses his comparison of the water system and electricity in order to explain the flow of electrons through a conductor. The electron theory of matter has been brought up to date and is explained in a fairly simple and comprehensible manner. Part II, on general electrotherapy and electrodiagnosis, includes material on currents of low frequency, high frequency, hyperthermy, electrosurgery, electrophysiology and electrodiagnosis. Because of the fact that static electricity has fallen generally into disuse, the author has condensed the material on this subject but states that "in competent hands the static apparatus is still a very useful and versatile piece of electrical equipment." Part III, on light therapy, has chapters on physics of radiant energy, ultraviolet radiation and heliotherapy and includes the physiologic effects of these modalities. Under special technics of ultraviolet irradiation has been added new material on ultraviolet irradiation of the blood. However, the author feels that too few clinicians have made reports on this procedure to make it preferable to other methods of treatment which require much less elaborate equipment and technics.

Part IV, on the essentials of hydrotherapy and mechanotherapy, is a concise description of hydrotherapeutic measures, massage and exercise. Here is a new chapter on hypothermy with descriptions of the mechanical apparatus devised for treatment as well as physical and physiologic effects and therapeutic considerations. Hypothermy also includes a brief but excellent discussion of cold injuries (immersion foot, chilblains and frostbite) with the present day methods of treatment. Part V, on applied physical therapy, gives indications and contraindications for physical therapy in most branches of medicine and surgery. Greatest emphasis is placed on the use of electrotherapy and light therapy in the majority of clinical entities, although the use of massage and exercise is mentioned rather briefly. Included are chapters written by collaborating authors who are specialists in their particular fields of medicine. Here too is material on physical therapy in office practice and institutional practice, which describes the planning of physical treatment, frequency of treatment, judging of results and selection of apparatus and personnel as well as a floor plan for a model physical medicine department in a hospital.

The author has included many pictures of equipment, diagrams and charts which are instructive and well arranged. Bibliographies at the end of a number of chapters give an opportunity to read further on material which may be too briefly handled in this book. The appendix contains tables of motor nerves and muscles as well as motor point charts which are necessary in electrodiagnosis. Because of the clear presentation of the material and the fine glossary, this book is useful either as a textbook for students of physical therapy or as a reference work for clinical practice.

Textbook of Bacteriology. By Edwin O. Jordan, Ph.D., and William Burrows, Ph.D., Associate Professor of Bacteriology, University of Chicago, Chicago, Illinois. Fourteenth edition. Cloth. Price, $7. Pp. 909, with 242 illustrations. Philadelphia & London: W. B. Saunders Company, 1945.

The passage of a textbook through fourteen editions over a period of almost forty years is sufficient evidence of its success. In the review of such a work it is necessary only to point out certain changes. The earlier editions were characterized by their emphasis on bacteriology as a biologic science. Although medical aspects of bacteriology were amply covered, the book was nevertheless a textbook of general bacteriology. Since Burrows has taken over the editorship he has continued to emphasize the fundamental importance of bacteriology as a science, but he has endeavored also to extend its usefulness along medical and diagnostic lines. This edition represents more than the usual type of revision in that several chapters have been completely rewritten. Rapid advances in the field of bacteriology have required this and the publishers are to be commended for their desire to make the revision a real one. In the present edition the chapters dealing with the yeasts, molds and Actinomyces have been completely rewritten, and the chapter dealing with the parasitic protozoa has been extended. Many new illustrations have been added, all of excellent quality. Particularly valuable are the chapters dealing with bacterial physiology, bacterial heredity and variation. In view of the confusion regarding classification of bacteria, the chapter dealing with that subject, including various classifications, enables one to understand better the reasons for the changing emphases. The chapters on the relationship of bacteria to disease and on resistance present the current points of view. One might question the retention of the old Ehrlich receptor theory with the pictures of receptors of the various orders, as this is now largely a matter of history, but perhaps in future editions this will be attended to. The book is beautifully printed and illustrated. There is no doubt that it will continue to serve its purpose even better in the future than it has in the past, owing in large measure to the scholarly way in which Burrows has planned the revision.

Human Biochemistry. By Israel S. Kleiner, Ph.D., Professor of Biochemistry and Physiology, New York Medical College, New York. Cloth. Price, $6. Pp. 573, with 75 illustrations. St. Louis: C. V. Mosby Company, 1945.

This is essentially a textbook of biochemistry for the medical student. It is not a suitable reference work for the practicing physician. The author has made a laudable attempt to relate the subject matter to clinical medicine in sufficient detail to lend interest and significance to the chemical facts, but briefly enough so that the student is not diverted too far or too long from the fundamental subject. There can be little doubt that the book will prove more interesting to medical students than were former textbooks which neglected the clinical aspects. However, this seems to have been accomplished at the expense of fulness and depth in the presentation of the biochemical matter. It may be that through the use of this book the student will learn less biochemistry but will remember and apply a proportionately greater amount in his clinical thinking. It would be of considerable pedagogic importance to know whether this does or does not turn out to be the case.

Clinical Parasitology. By Charles Franklin Craig, M.D., M.A., F.A.C.S., and Ernest Carroll Faust, M.A., Ph.D., Professor of Parasitology in the Department of Tropical Medicine, Tulane University of Louisiana, New Orleans. Fourth edition. Cloth. Price, $10. Pp. 871, with 309 illustrations. Philadelphia: Lea & Febiger, 1945.

The publication of a fourth edition within two years of the third edition attests the deserved popularity of this authoritative textbook of medical parasitology. Text material has been revised and brought up to date and thirty-one illustrations have been added. Information concerning DDT and other wartime advances in disease prevention is included. However, the recommendations on the use of atabrine in the section on the treatment of malaria do not take full account of recent military experience with the drug. Summary tables of the diagnosis and treatment of parasitic infections are provided for the student. The completeness with which the subject is covered and the extensive bibliography also make the volume valuable for reference purposes.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

PROGRESSIVE MUSCULAR DYSTROPHY

To the Editor:—A man aged about 26 is afflicted with progressive muscular dystrophy, probably of the Erb type. The patient has been examined by numerous clinics throughout the country, including the Mayo Clinic, but, in spite of aminoacetic acid and numerous other attempts at treatment his condition is slowly progressing. The patient is quite discouraged, and the family is willing to try anything that might help his condition. Would it be possible for you to forward a copy of this letter to some physician, foundation or clinic that has been doing experimental work in the treatment of this unfortunate disease? R. W. Sleeter, M.D., Medford, Ore.

Answer.—No effective specific therapy for progressive muscular dystrophy yet exists. Many types of treatment have been proposed, but each of these after extensive observations has been demonstrated to be without effect. An abnormality in creatine metabolism with an increase in urinary excretion of creatine and a decrease in creatinine excretion accompanies the disease. It has been demonstrated that changes in creatine excretion may be effected in the dystrophic patient by the administration of a number of substances. These include gelatin (Gibson, R. B., and Martin, F. T.: *J. Biol. Chem.* **49**:319 [Dec.] 1921), aminoacetic acid (Brand, E.; Harris, M. M.; Sandberg, M., and Ringer, A. I.: *Am. J. Physiol.* **90**:296 [Oct.] 1929), pancreatic extract (Meldolesi, G.: *Policlinico* [sez. prat.] **43**:1187 [June 29] 1936), vitamin E (McBryde, A., and Baker, L. D.: *J. Pediat.* **18**:727 [June] 1941) and testosterone (Hoagland, C. L.; Shank, R. E., and Gilder, H.: *Proc. Soc. Exper. Biol. & Med.* **55**:49 [Jan.] 1944). However, administration of these substances to large groups of patients for prolonged periods has failed to provide objective evidences of improvement. Recently in a preliminary communication Milhorat and Bartels described a decrease in creatinuria in progressive muscular dystrophy which occurs when a condensation product of alpha tocopherol and inositol is administered (*Science* **101**:93 [Jan. 26] 1945). Only a small group of patients was treated, and no statement was made concerning the effect of this compound on other manifestations of the disease. None of the substances so far used in therapy have been shown to increase the creatinine output of patients with progressive muscular dystrophy. According to evidence presented by Hoaglund, Gilder and Shank, the decrease in the urinary excretion rate of creatinine is more closely related to the amount and degree of involvement of muscle than is the creatinuria (*J. Exper. Med.* **81**:423 [May] 1945). Moreover, effective therapy should be accompanied by objective evidences of improvement in muscle function and by the disappearance of signs of degeneration and atrophy of the affected musculature.

Despite the fact that specific forms of therapy are lacking, certain considerations in the general care of the patient with progressive muscular dystrophy may postpone the development of incapacitating contractures and the onset of a state of complete invalidism. Patients should be encouraged to use affected musculature as long as even minimal function remains. Periods of prolonged bed rest have been observed to accelerate the process of muscular atrophy. For this reason it is of importance to protect these patients from infectious diseases and illnesses which may make bed rest necessary. Excessive muscular exertion may precipitate more rapid progress of the disease. Therefore, exercise and use of the affected muscles should not be carried to the point of fatigue. Lipodystrophy with deposition of large masses of subcutaneous fat often accompanies the disease. The provision of a diet meeting basal requirements but not permitting excessive weight gain may protect diseased muscle from work loads which are unnecessarily great.

STREPTOMYCIN IN TUBERCULOSIS

To the Editor:—What is the efficacy of streptomycin or any other medication in the treatment of primary childhood tuberculosis? My little daughter has contracted the infection (none in the family—it must have been through a nurse or maid) and I am afraid of hematogenous dissemination, as her condition is poor. M.D., New York.

Answer.—Streptomycin, an antibiotic isolated by Waksman and his co-workers (Waksman, S. A., and Woodruff, H. B.: *Proc. Soc. Exper. Biol. & Med.* **49**: 207 [Feb.] 1942), from a soil Actinomyces—Streptomyces grisei—has been found to be useful in controlling infections by many gram negative microorganisms. In tuberculosis the effect is limited but promising. Most of the reports to date have been made by Hinshaw and Feldman and others, at the Mayo Clinic (Feldman, W. H.; Hinshaw, H. Corwin, and Mann, Frank C.: *Am. Rev. Tuberc.* **52**:269 [Oct.] 1945. Feldman and Hinshaw, *ibid.*, p. 299). The effect on animal tuberculosis, reported by the authors and others (Youmans, Guy P., and McCarter, John C., *ibid.* **52**:432. [Nov.] 1945) has been more favorable than any other agent tried up to the present time. Many animals were made bacillus free following the treatment.

In human disease the results have been encouraging but not as good as in animals. There seems to be little doubt that the drug retards certain types of tuberculous infections. It is too early, however, to say how permanent are the effects on tubercle bacilli, but open kidney lesions, lymph node lesions, sinuses, lesions of mucous surfaces, late generalized miliary pulmonary lesions and miliary lesions associated with primary infections have been noted to change and partially disappear following streptomycin treatment. The course of the disease in some cases of tuberculous meningitis has been modified, but as yet recovery has not occurred. The changes, however, in ordinary lung tuberculosis have not been sufficient to warrant enthusiasm.

Of almost equal importance to the effect on the disease is the low toxicity of the drug. With few exceptions ill effects from daily doses of several million units, even when administered to infants, do not occur. In a few cases there has appeared to be a slight disturbance of the labyrinth, either directly or as an effect on the nerve. However, the loss of equilibrium seems to be transient and present in only a few cases.

The older the child, the less is the possibility of meningitis and the greater is the possibility of survival as a result of ordinary hygienic care. Streptomycin is probably harmless, although experience is not yet sufficient to say this with certainty. A course of streptomycin treatment might be considered as an experiment when the drug becomes available.

GEOGRAPHIC DISTRIBUTION OF DIABETES

To the Editor:—I have been told by practitioners in Maine that the morbidity rate of diabetes mellitus in that state is unusually high. Do the statistics bear this out? Has it been shown that geographic distribution plays a part in the etiology of the disease? M.D., New Jersey.

Answer.—Statistics are not available for the morbidity rate of diabetes in Maine. In 1944 sixteen states in the United States had a higher death rate from diabetes during the first nine months than did Maine. In this period Maine showed a death rate per hundred thousand of 28.3. The average for thirty-nine states and the District of Columbia was 27. The state with the highest death rate from diabetes was New York with 42.4, and then followed New Hampshire 38.9, Rhode Island 37.8, Massachusetts 37.3, Pennsylvania 35.3 and Vermont 35.7.

Geographic distribution does not play a part in the etiology of diabetes, but the field is open for intensive research. A survey of Arizona, where the mortality rate for diabetes per hundred thousand in 1937 was 10, as compared with that of Rhode Island, in which it was 42, demonstrated that when the age of the population, sex, number of Jews, obesity, medical supervision and deaths available for statistical purposes were considered the morbidity rate of the two states was approximately the same.

SKIN IRRITATION FROM CYANIDE IN CADMIUM PLATING

To the Editor:—In cadmium plating the solutions used are cadmium or sodium cyanide. Is there a nonpoisonous and relatively nonirritating substitute for the cyanide solution? It need not be as good as the cyanide solution if it could give fair results.

Aaron N. Gorelik, M.D., Bronx, N. Y.

Answer.—At the present time in cadmium plating, cyanide solutions are almost invariably employed. From the point of view of quality of results and economy, cyanide solutions are greatly preferred in the trade. However, it is common practice to use along with the cyanide solution sodium carbonate or caustic soda. While this is done for product reasons rather than for protection of the worker, some benefit derives because the presence of such alkalis hampers the liberation of hydrocyanic acid, and the quantity used does not increase the probability of skin irritation. The only known substitute for cyanide baths are sulfate baths, but the product obtained is frequently less perfect than with cyanide solution. In case highly lustrous coatings are desired, sulfate baths in some instances may be used to advantage. The chief objection to sulfate baths is the rough crystalline character of the plating with a disposition toward treeing, which is often undesirable. To a degree this may be overcome through the addition of colloidal agents such as gelatin. This matter is discussed in "Modern Electroplating" (American Chemical Society, Inc., Columbia University, New York, 1942). In all other forms of electroplating cyanide baths are far less indispensable. Although cyanide is widely used in copper and indium plating, suitable substitutes are available, particularly in the case of indium plating, in which sulfate baths are increasing in popularity. Through the use of adequate exhaust systems and skin protection, cyanide baths in cadmium plating may be made essentially noninjurious.

DOSE OF ACETYLSALICYLIC ACID FOR HEADACHE

To the Editor:—What is the pharmacologic basis that determines the dose of acetylsalicylic acid used in the treatment of simple headaches for which no apparent cause can readily be found? Is 5 grains as efficient as 10 or 15 grains for an anodyne effect? What is the optimum time interval between doses?

M.D., District of Columbia.

Answer.—The basis for dosage is largely empirical. Clinical custom is to administer about 0.6 Gm., repeated if necessary every three or four hours. Although one cannot directly transfer available experimental evidence to the clinical problem of headache, the presumption is that such findings as those of Wolff, Hardy and Goodell (*J. Clin. Investigation* 20:63 [Jan.] 1941) are relevant and indicative of general effects. Thus it was shown that if the pain produced by heat focused on the forehead could be relieved at all, 0.3 Gm. of acetylsalicylic acid would give a maximum degree of relief, but that 0.6 or 0.9 Gm. would prolong the effect somewhat. Also administration of 0.3 Gm. every two hours gave more sustained relief than 0.6 Gm., or more, every three hours. One might conclude therefore that *the customary clinical dose is too large and the administration* too infrequent. However, simple headache often responds to one dose, in which case the larger amount would presumably be more lasting and therefore more useful. In any case, treatment is unlikely to be long continued and so toxicity is not greatly to be feared. Until more direct evidence is available it is probably advisable to use a dose of 0.6 Gm., repeated every two to four hours as necessary, for the relief of simple headache.

INABILITY TO GAIN WEIGHT

To the Editor:—A woman aged 20, single, who has been under my care for five weeks, is definitely underweight and has a history of having been in a sanatorium for possible tuberculosis for nineteen months ending May 1944. She complains of poor appetite but doesn't feel tired, and aside from the anorexia and underweight the physical examination reveals practically nothing. I put this girl on a high calory diet. She kept a count of her calories and averaged 2,700 to 3,000 calories a day. The first week she gained 2 pounds (0.9 Kg.), for four weeks she remained at exactly 93 pounds (42 Kg.) and today was down to 90 pounds (41 Kg.). Although she does not have a goiter, I made a test of her basal metabolism this morning; the result was minus 1.5. Why doesn't this young woman gain weight in spite of the normal thyroid action and high caloric intake? She does not work except possibly for light housework. The last x-ray at the sanatorium showed the tuberculous lesions to be well healed. She does not have clinical symptoms of active tuberculosis at present. What other conditions must one consider in connection with this girl?

T. G. Harvey, M.D., Fort Fairfield, Maine.

Answer.—The law of the conservation of energy still holds. If the patient claims that she is eating 2,700 to 3,000 calories a day and maintains her weight at 90 pounds in spite of a normal level of metabolism, she either does not know what a calory is or imagines that she eats more than she actually does or else disposes of her food and claims that she eats it. It is assumed, of course, that the patient has been carefully studied and does not have diabetes mellitus.

The case is recalled of a student who had a basal metabolic rate of −25 per cent and weighed 75 pounds (34 Kg.). She insisted that she was taking 2 grains (0.13 Gm.) of thyroid and 1 quart (liter) of 20 per cent cream daily in addition to her meals. In spite of her statement, her basal metabolism remained at the low level and her weight did not increase. She was finally placed in the hospital for observation. The administration of desiccated thyroid was continued and she was placed on a diet about 3,500 calories. Her basal metabolism still remained at a level of approximately −25 per cent and her weight at a level of about 75 pounds. All the food that was served to her disappeared from her tray. The mystery was solved when the maid on the floor caught the patient one day throwing her food in the toilet seat which was in her room. From then on she began to gain weight.

BRUCELLOSIS OR TULAREMIA AND BLINDNESS

To the Editor:—A boy aged 9 years has been ill for five weeks. At the beginning he had a definite pallor, then a jaundiced appearance over the entire body followed by fever and an enlargement of all lymph nodes. He complained of pain in the joints and headache. There was no ulceration or breaking down of any of the glands. His face and eyes were swollen. Two weeks ago his hearing and vision began to fail, until he became partially deaf and almost totally blind. A blood test has been taken and the disease pronounced tularemia. At the present time he does not suffer pain and his appetite is good with only slight nausea and a burning in the stomach. His temperature varies from normal to 102 F., the pulse rate is 100 and the respiratory rate is around 20. His face and eyes are still swollen. His hearing has improved, but he is still blind. I cannot find reports of involvemeent of the eyes and the ears in any of the medical literature I have on the subject, and none of the physicians with whom I have talked have ever heard of this complication. Treatment has been supportive.

V. P. Jackson, M.D., Pinehurst, Ga.

Answer.—Insufficient information is given to make a diagnosis. Except for rare cases of oculoglandular infection, diminution or loss of vision has not been recorded for tularemia. The type of onset and the early clinical course described do not suggest tularemia. The agglutination test for tularemia should be repeated. At the same time request should be made for agglutination of Brucella and Leptospira. Additional helpful information toward a diagnosis would include a complete blood count and examination of the fundus for evidences of optic atrophy or of choking of the disk that might imply cavernous sinus thrombosis. Both of the latter have been observed in brucellosis, and serum from some patients with this infection will agglutinate Bacterium tularense.

ACETANILID AND SULFHEMOGLOBINEMIA

To the Editor:—A patient has sulfhemoglobinemia apparently as a result of long continued ingestion of B. C. headache powders. The diagnosis has been proved spectroscopically. What is the latest treatment of this condition? The patient also has latent syphilis with positive serologic reaction after nine months of weekly treatment elsewhere. Have syphilis and sulfhemoglobinemia in the same patient been reported previously, and would treatment of one condition affect the other in any way?

Maurice J. Small, M.D., Parsons, W. Va.

Answer.—Acetanilid, which has been reported in B. C. headache powder, has been reported to cause sulfhemoglobinemia (Morgan, T. N., and Anderson, A. Greig: *Brit. M. J.* 2:187 [Aug. 10] 1940). There is no special treatment for sulfhemoglobinemia. Recovery occurs slowly after discontinuation of the offending drug. Record of syphilis and sulfhemoglobinemia in the same patient has not been found. As antisyphilitic drugs have not been shown to produce sulfhemoglobinemia, their use is not contraindicated in this condition. The recent literature on this subject is concerned mainly with sulfonamide therapy as an etiologic factor.

DIAGNOSIS OF ACUTE CHOLECYSTITIS

To the Editor:—Is it possible to have an acutely infected gallbladder without bile in the urine, a negative van den Bergh reaction and an icterus index of 9?

J. M. Bodenheimer, M.D., Shreveport, La.

Answer.—The presence of bile in the urine, a positive direct van den Bergh reaction and an elevated icterus index all indicate the presence of obstruction in the biliary passages beyond the union of the cystic and hepatic ducts. Acute cholecystitis does not necessarily imply the presence of inflammatory obstruction in the required area, so acute cholecystitis may exist without the signs of biliary obstruction. When the signs of biliary obstruction appear, one assumes that the inflammatory process has spread into the bile passages. The icterus index of 9 is slightly above the usual normal range but is still below the level of clinical jaundice.

TEMPERATURE AND HUMIDITY IN OPERATING ROOM

To the Editor:—At what temperature should an operating room be kept for abdominal surgery and for general surgery other than abdominal, if there is any difference?

M.D., Vermont.

Answer.—A temperature between 78 and 80 F. has been found satisfactory at one of the leading hospitals. No attempt is made to control the humidity. When the operating rooms are air conditioned, the humidity is kept between 50 and 55 per cent and the temperature range is from 70 to 80 F. in direct relation to the humidity. This has been considered ideal for general surgery.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 130, No. 6
Chicago, Illinois
February 9, 1946

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TOXIC MANIFESTATIONS OF THIOURACIL THERAPY

A COOPERATIVE STUDY COMPILED BY FRANCIS D. MOORE, M.D.
Massachusetts General Hospital, Boston

Cooperating Clinics: BARNES HOSPITAL AND WASHINGTON UNIVERSITY SCHOOL OF MEDICINE, St. Louis, Cyril M. MacBryde, M.D.; BETH ISRAEL HOSPITAL, Boston, Samuel L. Gargill, M.D., and Mark F. Lesses, M.D., BOSTON CITY HOSPITAL AND MASSACHUSETTS MEMORIAL HOSPITALS, Boston, Robert H. Williams, M.D., and Howard M. Clute, M.D.; JEFFERSON MEDICAL COLLEGE AND HOSPITAL, Philadelphia, Karl E. Paschkis, M.D., Abraham Cantarow, M. D., and A. E. Rakoff, M.D.; JOHNS HOPKINS HOSPITAL, Baltimore, Elliot V. Newman, M.D., and John E. Howard, M.D.; LAHEY CLINIC, Boston, Elmer C. Bartels, M.D.; MASSACHUSETTS GENERAL HOSPITAL, Boston, James H. Means, M.D., Rulon Rawson, M.D., and Oliver Cope, M.D.; MAYO CLINIC Rochester, Minn., Samuel F. Haines, M.D., and F. Raymond Keating Jr., M.D.; NEW YORK HOSPITAL, New York, David P. Barr, M.D., and Ephraim Shorr, M.D.; PRESBYTERIAN HOSPITAL, New York, Walter W. Palmer, M.D., Sidney C. Werner, M.D., and Henry Aranow, M.D.; UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, London, England, H. P. Himsworth, M.D., M. E. Morgan, M.D., and J. M. Stowers, M.D.; UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, San Francisco, Mayo Soley, M.D.

Increasing evidence of the usefulness of thiouracil in the treatment of thyrotoxicosis [1] has been accompanied by the appearance of many reports concerning the toxicity of this drug. Not infrequently these published reports refer to isolated cases or are unaccompanied by full numerical data from the series involved. It is possible, therefore, that they may give an erroneous impression of the frequency of toxic reactions. Before the usefulness and final place of this drug can be settled, we must be able to balance its toxic manifestations against its pharmacologic advantages, and for this reason an accurate estimate of the incidence of severe toxic manifestations in patients under treatment with the drug should be a useful adjunct to our knowledge.

Therefore it has seemed advisable to gather together data from a large group of patients treated with thiouracil so that the actual incidence of toxic manifestations might be studied in relation to the total number of patients treated. In this way accurate statistics on the expected incidence of toxic reactions should be obtained. To accomplish this end the present group of eleven clinics in this country and one in England have accumulated their joint experience with toxic reactions, and these data are herewith presented. It should be stressed that this material is presented in an attempt to arrive at an accurate figure for the incidence of toxic reactions; it is not in any sense an appraisal of the usefulness of thiouracil or an attempt to define the limits of its applicability. Nor is it, further, an attempt to settle the present controversy as to whether this drug should be used as a treatment of thyrotoxicosis per se or in the preoperative preparation of patients for thyroidectomy.

It is of interest that the preparation of patients for surgery can usually be accomplished with this drug in eight weeks or less, and therefore the additional question presents itself of the time relationships of various toxic reactions. An attempt at analysis with respect to these factors will also be presented.

A further consideration in the method of analysis used has been the fact that thiouracil appears to have one potentially fatal toxic manifestation, that concerned with an effect on leukocyte production. Unlike the sulfonamides, thiouracil appears to carry only this major hazard at the present time. It is true that severe hepatic damage has been reported and several instances occurred in the present series of patients, but thus far these lesions have not proved fatal and have been amenable to the usual forms of treatment. The present effort has been to obtain accurate data on the incidence of the hematologic reactions rather than a tabulation of the host of other less dangerous reactions which may occur also with thiouracil and which doubtless will continue to be reported in new forms as time goes on. For this reason the incidence of agranulocytosis and leukopenia are the chief concerns of this investigation. The statistics concerning drug fever, skin eruptions, psychotic manifestations, lymph node enlargement, salivary gland disorders, hepatic damage and other reactions have not been stressed, and the data on these reactions are not intended to be definitive.

These cases include many of the first in which treatment with thiouracil was administered, and, as experience grows, means of avoiding these reactions may become evident.

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[1] A partial bibliography of recent articles dealing with thiouracil and thiouracil toxicity: Astwood, E. B.: Treatment of Hyperthyroidism with Thiourea and Thiouracil, J. A. M. A. **122**: 78-81 (May 8) 1943. Barr, D. P., and Shorr, E.: Observations on the Treatment of Graves' Disease with Thiouracil, Ann. Int. Med., to be published. Bartels, E. C.: Thiouracil: Its Use in the Preoperative Management of Severe Hyperthyroidism; Preliminary Report, J. A. M. A. **125**: 24-26 (May 6) 1944. Clute, H. M., and Williams, R. H.: Thiouracil in Preparation of Thyrotoxic Patients for Surgery, Tr. Am. S. A. **62**: 504-513, 1944. Ferrer, M. I.; Spain, D. M., and Cathcart, R. T.: Fatal Agranulocytosis Resulting from Thiouracil, J. A. M. A. **127**: 646-647 (March 17) 1945. Himsworth, H. P.: Thyrotoxicosis Treated with Thiourea, Lancet **2**: 465-466, 1943. Himsworth, H. P., and Joll, C. A., in discussion on Thiouracil and Thiourea in Treatment of Thyrotoxicosis, Proc. Roy. Soc. Med. **37**: 693-704, 1944. Kahn, J., and Stock, R. P.: Fatal Agranulocytosis Resulting from Thiouracil, J. A. M. A. **126**: 358-359 (Oct. 7) 1944. Linsell, D.: Agranulocytosis After Use of Thiouracil, Brit. M. J. **2**: 597-598, 1944. McArthur, J. W.; Rawson, R. W., and Means, J. H.: Idiosyncratic Febrile Reaction to Thiouracil, Ann. Int. Med., to be published. McGavack, T. H.; Gerl, A. J.; Vogel, M., and Schwimmer, D.: The Treatment of 26 Thyrotoxic Patients with Thiouracil and a Review of *Toxic Reactions in All (135) Reported Cases, J. Clin. Endocrinol.* **4**: 249-261, 1944. Meyer, A. H.: Granulocytopenia: Case Caused by Thiouracil, California and West. Med. **61**: 54, 1944. Moore, F. D.; Sweeny, D. N., Jr.; Cope, O.; Rawson, R. W., and Means, J. H.: The Use of Thiouracil in the Preparation of Patients with Hyperthyroidism for Th [illegible] **120**: 152-169, 1944. Newman, E. V.: T [illegible] M. Clin. North America **29**: 302-322, 1 [illegible] in Treatment of Thyrotoxicosis, ibid. 2 [illegible] E.: Cantarow, A.; Rakoff, A. E.; Walking, A. A., and Tourish, W. J.: Thiourea and Thiouracil in Treatment of Thyrotoxicosis, J. Clin. Endocrinol. **4**: 179-184, 1944. Riker, W. F., and Wescoe, W. C.: *The Pharmacology and Therapeutic Applications* of Anti-Thyroid Compounds, Am. J. M. Sc., to be published. Rubinstein, M. A.: Thiouracil Therapy: Agranulocytosis Following Administration, Am. J. Clin. Path. **14**: 540-543, 1944. Werner, S. C., and Elliott, R. H. E., Jr.: Thiouracil in the Treatment of Postoperative Recurrent Toxic Goiter, Bull. New York Acad. Med. **20**: 417, 1944. Williams, R. H., and Clute, H. M.: Thiouracil for Thyrotoxicosis, J. A. M. A. **128**: 65-69 (May 12) 1945.

In table 1 is shown a list of the clinical groups cooperating in this study and the number of patients treated by each group.[2]

The accumulated experience of this group of clinics comes to a total of 1,091 patients, a number which is probably large enough so that the incidence of toxic manifestations during thiouracil therapy may be regarded as statistically significant. The length of time during which these patients were under treatment covers a broad range from patients treated two weeks (less than 1 per cent of the series) to a very few patients treated for periods up to two years or more. The great majority of the patients were treated between two and eight months. The dosages have been variable, but they have varied within a fairly narrow range and, as will be seen later, do not materially affect the analytic results. Most of the clinics have employed 0.5 to 0.8 Gm. a day for a period of three to seven weeks or until the basal metabolic rate fell to normal or nearly normal levels. The dosages have then been cut to 0.2 to 0.4 Gm. per day, and those clinics which have carried the patients on for many months without surgery have further cut the dosage to as low as 0.1 Gm. or less per day or every other day. The clinics which have employed the drug largely as a preparation for surgery have tended to maintain higher dose levels, but for a shorter period of time; one group reports an average duration of preoperative treatment of fifty-seven days in the first 100 cases. The practice of the clinics with respect to surgery differs considerably and is not important for the purposes of this report. Three of the groups have used the drug solely as a preoperative treatment, three have used it predominantly as a treatment for thyrotoxicosis without surgery and the rest have either varied their practice from time to time or have consistently divided their cases into two groups.

TABLE 1.—*Number of Cases Treated at Cooperating Clinics*

Barnes Hospital and Washington University School of Medicine, St. Loui	62
Beth Israel	63
Boston Cit. Bostor	225
Jefferson	55
Johns Ho.	45
Lahey Clinic,	196
Massachusetts	99
Mayo Clinic,	38
	125
	88
	61
	31
	1,091

FATALITIES

In table 2 is shown the incidence of fatal outcome during the administration of thiouracil. In the 1,091 treated cases there were eight deaths which occurred during the administration of the drug. A brief account of these deaths follows:

CASE 1.—A person suffering from severe toxic diffuse goiter (metabolic rates starting in the range of + 56) and severe myasthenia gravis developed fever and a severe exacerbation of the myasthenic state on the eleventh day of treatment. The patient died on the following day, a typical myasthenic death. Although the drug may have been responsible for the fever, it is probable that the death should be regarded as a myasthenic death and not a death due to the drug itself, as the fever would probably not have been fatal in a thyrotoxic patient without myasthenia.

CASE 2.—A person with severe myasthenia gravis, who had relatively mild toxic diffuse goiter, was given the drug for two months, at which time death took place, the death being that of fatal myasthenia gravis. There was no leukocyte-depressing action of the drug. This again should not be considered a drug death.

TABLE 2.—*Deaths Under Thiouracil Administration*

Total Cases Treated	Total Deaths		Drug Deaths	
	Number	Per Cent	Number	Per Cent
1,091	8	0.73	5	0.46

CASE 3.—A middle-aged person who had developed a mild neutropenia on thiouracil was continued on the drug with the occurrence of agranulocytosis. This was treated by stopping the drug and administering vigorous systemic therapy. Four days after the polymorphonuclear count began to rise, the patient developed a cerebral thrombosis and died ten days following the cessation of thiouracil therapy. Although the cause of death is mixed in this case, it may be counted as a drug death, as it followed the development of agranulocytosis and was a complication of that condition (table 5, case 13).

CASE 4.—A person with severe arteriosclerotic heart disease, angina pectoris, pernicious anemia and thyrotoxicosis died a cardiac death and at postmortem examination extensive myocardial damage was found, consistent with a long history of coronary disease. Microscopic examination disclosed perivascular infiltrative lesions not unlike those found by Rich[3] following serum sickness and sulfadiazine poisoning and also reported by Marine and Baumann[4] in thiouracil fed rats. The role of thiouracil in this fatal outcome was doubtless of secondary importance in a complex situation, but the histologic changes suggest that tissue sensitivity phenomena may occur during the administration of thiouracil. This case is not considered to be a drug death.

CASE 5.—A woman under treatment with thiouracil for thirty-five days was given a dosage of 0.6 Gm. per day. After an initial period of regulation of her thyrotoxicosis in the hospital she was discharged home to be followed by her physician. After thirty-five days of therapy the patient complained of a sore throat. She died five days later of typical agranulocytosis with agranulocytic angina, despite vigorous treatment instituted after the recognition of the syndrome. This is considered to be a drug death[5] (table 5, case 9).

CASE 6.—This was the third course of thiouracil administered to this thyrotoxic patient during a period of one year. Thirty days following the initiation of thiouracil treatment and while on a dosage of 0.2 Gm. of thiouracil a day, the patient developed a sore throat, followed by a severe shaking chill and a temperature of 103.5 F. Thiouracil was omitted and the patient was hospitalized the following day. On the sixth hospital day the patient died of agranulocytosis. This death is regarded as due to the drug[6] (table 5, case 5).

TABLE 3.—*Incidence of Agranulocytosis*

Total Cases Treated	Agranulocytosis	
	Number	Per Cent
1,091	19	1.74

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[2] The collector of these data wishes to express his appreciation to the physicians in these many clinics for their readiness to pool their experiences and data on thiouracil toxicity so that an analysis of the whole series might be accomplished. This provides a more comprehensive survey than could be accomplished by any one clinic alone.

[3] Rich, [illegible] ence of Role of Hypersensitivity in Etiology of [illegible] l Case Associated with Sulfonamide Reaction, Bu [illegible] **71**: 375-379, 1942.

[4] Marine [illegible] J.: Periarteritis Nodosa-like Lesions in Rats Fed [illegible] **39**: 325-330, 1945.

[5] Bartels [illegible] C.: Toxic Reactions to Thiouracil, Lahey Clin. [illegible]

[6] Gargill, S. L., and Lesses, M. F.: *Toxic Reactions to Thiouracil,* J. A. M. A. **127**: 890-898 (April 7) 1945. Lesses, M. F., and Gargill, S. L.: The Effect of *Thiouracil on the Blood, with Especial Reference to Neutropenia and Agranulocytosis,* New England J. Med., to be published.

Case 7.—A woman received 65.2 Gm. of thiouracil in fifty-three days, a dosage unusually large because she had previously received iodine treatment and was resistant to thiouracil therapy. Agranulocytosis was diagnosed fifty-seven days after thiouracil was begun and the drug was then stopped. Starting about fourteen days before the thiouracil was stopped, the patient had a furuncle on the nose and about a week later she started to develop a paronychia. Terminally there was bronchopneumonia and a lung abscess. This must be considered a drug death; granulocytopenia was accompanied by widespread infectious manifestations (table 5, case 18).

Case 8.—A woman received 13.8 Gm. of thiouracil in thirty-six days. She was being treated outside the hospital and reported to her private physician with pneumonia and granulocytopenia, which were fatal. This also is considered to be a death due to the drug (table 5, case 10).

These data leave us with a figure for death under thiouracil administration of 0.7 per cent and death directly attributable to the drug of 0.5 per cent.

AGRANULOCYTOSIS

In table 3 is shown the incidence of agranulocytosis during thiouracil therapy. In this table the term "agranulocytosis" is used in the strict sense to mean depressed or absent neutrophilic cells with the concomitant picture of infection, usually around the neck, throat and floor of the mouth. The term is not employed unless the patient showed evidence of agranulocytic "angina" or sepsis elsewhere concomitant with a decided granulocytopenia. There were 19 such cases, the details of which are shown in table 5.

Table 4.—*Incidence of Leukopenia*

Total Series Reporting	Leukopenia	
	Number	Per Cent
781	27	3.4

With the exception of 3 patients who had previous thiouracil therapy, accounting for a possible degree of sensitization, the great majority of these cases of agranulocytosis occurred between four and eight weeks of therapy. There was one delayed case at thirty-six weeks. Of the 19 cases, therefore, 15, or 79 per cent, occurred during the second month of treatment, and 18 out of 19, or 95 per cent, occurred in eight weeks or less after the initiation of treatment. No exact quantitative relationships can be discerned between the total amount of drug employed and the onset of agranulocytosis, as some patients developed severe granulocyte depression on as little as 4.2 Gm. of the drug and others required as much as 65.2 Gm. However, it is important to stress that it is not the total amount of thouracil administered but rather the period over which it has been administered which determines the "period of maximal danger" or "period of maximal neutropenic incidence." This phase, when the patient is most apt to develop a potentially fatal complication, is between four and eight weeks of treatment, and during this stage of therapy the patient should be followed with extreme care. However, it should be emphasized, since the overall spread in the incidence of agranulocytosis runs from two weeks to thirty-six weeks, that throughout treatment the patient must be followed with reasonable clinical precautions.

Previous thiouracil administration tends to hasten the onset of this "period of maximal neutropenic incidence." Four out of 19 cases of agranulocytosis had had previous thiouracil therapy. Therefore, it is conceivable that sensitization by previous administration may at times be an important etiologic factor in the development of agranulocytosis.

As the 5 deaths which were reported as directly attributable to the drug occurred as a result of agranulocytosis, the mortality rate for agranulocytosis is 5 out of 19, or approximately 26 per cent, in this series.[7]

Two patients developed agranulocytosis while on thiouracil and a sulfonamide simultaneously. The avoidance of this combination would appear to be justified as a general policy, since either drug alone may depress leukocyte production.

Table 5.—*Patients Developing Agranulocytosis*

Case	Duration of Treatment	Comment
1	2 weeks	Previous thiouracil therapy; possible agranulocytosis during previous treatment at other institutions
2	2 weeks	Previous thiouracil therapy six months ago; present dose 0.2 Gm. per day; WBC 4,900, PMN 8%; sore mouth; borderline case[8]
3	3 weeks	Previous thiouracil therapy six months ago; present dose 0.2 Gm. per day; WBC 600, granulocytes 0%; severe pharyngeal manifestations, recovered with intensive penicillin therapy after 7 days of complete agranulocytosis[8]
4	4 weeks	Dose 0.6 Gm. per day; WBC 3,100, PMN 0%; typical pharyngeal manifestations
5	4 weeks	Previous thiouracil therapy on two occasions within a year; dose 0.2 Gm. per day, 3 months, first course; 0.2 Gm. per day, 3½ months, second course; present dosage 0.2 Gm. per day; had been discharged from hospital; WBO 1,000, PMN 0%; severe pharyngeal manifestations; bone marrow biopsy showed hypoplastic marrow; died on 6th day of agranulocytosis[6]
6	4 weeks	Patient developed fever and pharyngeal inflammation 8 days after stopping thiouracil; WBC 900, PMN 0%[5]
7	4 weeks	Mild systemic reaction with early agranulocytic angina; WBC 1,600, PMN 7%[5]
8	4 weeks	Angina pectoris treated with thiouracil 0.8 Gm. per day 7 days, 0.6 Gm. per day 18 days, 0.4 Gm. per day 2 days; WBC 2,100, PMN 7%; borderline case[6]
9	5 weeks	Dose 0.6 Gm. per day; had been discharged from hospital; sore throat first symptom; WBC 1,000, PMN 0%; Died on 5th day of disease[5]
10	5 weeks	Dose 0.3 Gm. per day for 25 days, 0.2 Gm. per day for 11 days; pneumonia with concomitant agranulocytosis and agranulocytic angina; fatal outcome
11	6 weeks	Concomitant sulfadiazine therapy for pneumonia; dose 0.9 Gm. per day 40 days, 0.6 Gm. per day 6 days; PMN 0%
12	6 weeks	Dose 0.8 Gm. per day; a 70 year old patient who showed a poor response to thiouracil; also had diabetes mellitus
13	6 weeks	Agranulocytosis apparently successfully treated by stopping the drug and administering intensive therapy; cerebral thrombosis at the time that blood count began to rise; death 10 days following cessation of thiouracil treatment
14	6 weeks	Mild agranulocytosis; recovery[5]
15	6 weeks	0.6 Gm. per day for 14 days, 0.4 Gm. per day for 14 days, 0.2 Gm. per day for 14 days; fever, infected finger; PMN greatly reduced for 7 days (Williams, R. H., and Clute, H. M.: New England J. Med. **230**: 657, 1944)
16	7 weeks	
17	8 weeks	Concomitant sulfathiazole therapy
18	8 weeks	Dose 1.5 Gm. per day for 37 days, 0.6 Gm. per day for 16 days; unusually large dose of thiouracil in patient apparently resistant to treatment; granulocytopenia with angina, furuncle on nose, paronychia, bronchopneumonia, lung abscess; fatal
19	36 weeks	

LEUKOPENIA

In table 4 is shown the incidence of leukopenia during the administration of thiouracil. In this table the term "leukopenia" is used to denote depression of the white cell series without the development of infection around the throat or floor of the mouth or elsewhere and in which the selective depression of the neutrophilic series is not as striking as in the cases of agranulocytosis. This table includes cases only from those series in which the incidence of leukopenia was indicated numerically. Most of the clinics regarded any reduction of white cell count to less than 3,000 as significant. The polymorphonuclear cells were usually somewhat reduced, though rarely below 10 per cent, and in some cases they remained as high as 50 per cent.

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[7] One additional instance has been reported which is of interest in this connection. The patient received thiouracil for about three weeks and then developed a leukopenia. The drug was stopped and two weeks later she developed granulocytopenia and a *temperature of 106 F.*, with cellulitis and lymphangitis of the finger, extending up to the axilla. During this time, her white blood count fell to 400. She was treated with penicillin and transfusions and ultimately recovered. It is difficult to reconstruct all the events leading up to this situation, but in view of the leukocyte depression produced two weeks previously by thiouracil, one may place the blame for the failure of leukocyte response at least in part on thiouracil. If this is true, it would suggest that any patient who has developed a neutropenia on thiouracil should be followed closely for approximately another month and advised as to the dangers of intercurrent infection.

It is significant that no leukopenias were reported as occurring less than twenty-five days after the initiation of treatment, with the one exception of a patient previously treated with thiouracil without reaction. The majority of the leukopenias occurred at four to six weeks of treatment. In many of these cases the white cell count returned to normal without ceasing administration of the drug. In the majority of them, however, the drug was stopped and again a return to normal without other specific therapy was the rule. It is worth stressing that here again, just as in the agranulocytoses, the "period of maximal leukopenic incidence" is from four to eight weeks after the initiation of treatment.

DRUG FEVER

In table 6 is shown the incidence of drug fevers in this group of cases, and only those series in which the incidence of fever was definitely recorded are included in this tabulation. In all of these cases except 4 the drug was known to be definitely the cause of the fever, usually as demonstrated by the administration of subsequent "pilot" doses. It is of interest that one of these drug fevers, subsequently proved to be due to the drug, occurred only five hours after the initial administration of the drug. This suggests preexistent sensitization from some unknown source, a factor which might, in isolated cases, hasten the onset of leukocyte-depressing reactions also. All of these drug fevers are early manifestations and with only two exceptions they occurred under four weeks of therapy. The dosages employed did not vary significantly between those clinics reporting fevers and those few groups which included a very low incidence or absence of fever. The latter were all small groups of patients in which the laws of probability might be responsible for the reported absence of drug fever.

TABLE 6.—*Incidence of Drug Fever*

	Drug Fever	
Total Series Reporting	Number	Per Cent
781	38	4.9

MISCELLANEOUS REACTIONS

Other toxic reactions of a wide variety were reported from a number of clinics. As previously mentioned, a detailed analysis of these miscellaneous and variable reactions has not been an important part of this joint effort. However, a brief statement of the data which are available is as follows:

Ten cases of lymph node or glandular enlargement were reported in a total of 458 cases in series reporting the presence or absence of this complication. These glandular enlargements included disorders in the various salivary glands as well as the lymph nodes in the neck. One case of thyroiditis was reported. Two cases of acute parotitis were reported in this series. Many of these reactions disappeared with continuance of the drug and none of them was of special severity. One case of "Mikulicz syndrome" was reported with swelling of the parotid glands, the submaxillary glands and the tear glands. Possibly a related phenomenon was the occurrence of conjunctivitis in another patient.

One clinic reported several cases of oral sepsis associated with administration of the drug but unassociated with white cell depression. These were cases of dental abscesses, gingivitis, sore throat and stomatitis without agranulocytosis, which seemed to undergo exacerbations while under treatment with the drug. An exact causal relationship could not always be established. The drug was not stopped in most of the cases.

Various groups reported skin reactions, edema of the feet, jaundice and psychotic manifestations as isolated happenings. Albuminuria in several cases and 1 case of hematuria represent the only renal complications reported. The albuminurias appeared to be of little significance. The hematuria occurred without crystalluria and could have been due to causes other than the drug.

One case of platelet depression to 32,000 with positive Rumpel-Leeds test occurred after twelve days of treatment. The bleeding time was normal, the clotting time increased to 20.5 minutes (Lee and White test). Check platelet counts and smear confirmed this situation. Within forty-eight hours of withdrawal of the drug the platelet count rose to normal levels. Subsequent administration of thiouracil (ten days later) to the same patient failed to alter the platelet count.[8]

The occurrence of mild and occasionally profound myxedema has been observed in patients in whom treatment has been allowed to depress the metabolism to a low level. During this phase, if the patient is prepared for operation with the usual preoperative medication, unusual sensitivity to opiates may be observed which must be regarded as one of the hazards of thiouracil administration.

Two "scleroderma-like" reactions have been observed in which the patient developed tightness of the skin and a sensation of muscle binding. Objectively they showed loss of skin mobility and elasticity, but little else. Both these patients had been treated for sixty-five to seventy-five days and both of them were mildly hypothyroid.[5]

SUMMARY

A joint study of the incidence of severe toxic reactions during thiouracil therapy has been completed by eleven clinics in various parts of the United States and one in England. One thousand and ninety-one patients were treated in these institutions up to the time of reporting their data (which was generally completed about April 15, 1945).

The series reported includes patients treated for periods of from two weeks to two and one-half years. The dosages employed were generally from 0.5 to 0.8 Gm. per day for a period of three to seven weeks or until the basal metabolic rate was normal, following which the dose was either reduced or the patient was operated on. Minor variations in this dosage routine were employed by many of the clinics and do not significantly alter the statistics. The following summary of the data here presented is offered, using round numbers to express incidence:

1. Death under administration of the drug, 0.7 per cent.
2. Death attributable directly to the drug, 0.5 per cent.
3. Agranulocytosis, 1.8 per cent.

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[8] Barr, D. P.: Thiouracil in the Treatment of Thyrotoxicosis, New York Med. 1: 17, 1945.

4. Death rate in agranulocytosis, 26 per cent.
5. Leukopenia without agranulocytic angina, 3 per cent.
6. Fever, 5 per cent.
7. Glandular enlargement, 5 per cent.
8. Miscellaneous reactions, 2 per cent.

Of these reactions agranulocytic angina, leukopenia and high fever all make cessation of drug administration virtually mandatory. The total incidence of these reactions is between 8 and 10 per cent. These data would indicate that approximately 1 out of 10 patients in whom treatment was started had to have the treatment stopped because of the incidence of a reaction which could not be handled safely without discontinuance of the drug. This is a maximal figure, as some of the leukopenias may be treated with continuance of the drug, although there is some evidence to indicate the possible danger of such a course. On the basis of these figures, approximately 2 out of every 100 patients treated may be expected to develop agranulocytosis. If this reaction is identified and diagnosed immediately and drastic treatment begun, the death rate may be lowered below the figure of 26 per cent observed in this early series of cases. The data here presented lead to the conclusion also that previous thiouracil therapy or concomitant sulfonamide therapy appears to increase the risk of leukocyte depression and therefore enforce careful observation and the utmost caution in the handling of patients.

The treatment of agranulocytosis falls beyond the scope of this report; all those who have had experience with this complication stress that early and adequate penicillin therapy is of the utmost importance in controlling the infectious manifestations.

The most dangerous period from the point of view of leukocyte depression is from four to eight weeks after initiation of treatment. The onset of this period may be lowered to two weeks, if the drug has been administered previously to the same patient, regardless of whether or not there was untoward reaction on the previous occasion. During this "danger period," any patient under treatment with thiouracil should be followed with extreme care and caution, and the isolated incidence of toxic reactions up to nine months of therapy make continued supervision essential.

COMMENT

DR. DAVID P. BARR, New York: It is not apparent that the size of the dose or the method of administration will insure against toxic reactions. It is evident that agranulocytosis will appear with disarming suddenness. It is unlikely that even frequent blood counts will give a sufficient warning. At least equally important is the education of the patient to symptoms which may indicate the beginning of agranulocytosis and a liability to infection. As our study has gone on, we have had to depend more and more on the cooperation of the patient in detecting evidence of toxicity. All will agree that early diagnosis of agranulocytosis is crucial. Our own experience with one case of great severity has suggested to us that a patient may be protected for many days during complete agranulocytosis from overwhelming infection by adequate use of penicillin.

DR. H. P. HIMSWORTH, London: If leukopenia is arbitrarily defined as a level of white blood corpuscles lower than 3,000 per cubic millimeter, then it is quite correct to say that thiouracil does not produce leukopenia in more than a minority of patients. But if the white blood cell count after treatment is compared with the white blood cell count before treatment in the individual patient, it has been our experience that a fall occurs in most cases. In further support of this view is our observation that the Arneth count swings to the left under thiouracil therapy. This depression is related to dosage. With 0.8 Gm per day the white blood count falls. When the dose is lightened to 0.2 or 0.1 Gm. the level rises to approximately the value before treatment. Thereafter a slow decline spread over many months occurs in many patients, although it is only in very few that the level falls ultimately below 3,000. These observations were undertaken in the hope that we might be able to detect potential cases of agranulocytosis before symptoms developed. In this respect they have failed. There has been nothing unusual about the fall in the white cells in those of our cases in which agranulocytosis has developed or in most of those in which leukopenia has developed. In both instances the condition has appeared suddenly and in the former appears to have been related to an intercurrent infection. The practical points which arise from these results are that a fall in white blood cells occurs in most patients under thiouracil therapy and is not necessarily an alarming feature. Routine white blood cell counts should be done on all patients to detect unsuspected leukopenia; but it cannot be assumed that, if the white cell level is normal, the patient will not develop agranulocytosis even in the immediate future. All patients, irrespective of the levels of their white cells, should be instructed to omit thiouracil and report at once if any febrile illness develops.

DR. KARL E. PASCHKIS, Philadelphia: Since this report was submitted we have made further observations which appear of interest. We have observed 2 cases of agranulocytosis other than those described in this report. In both cases there was associated liver damage, as evidenced by jaundice and abnormal sulfobromophthalein retention. Whether the liver damage was a result of the concomitant infection or whether the liver damage played a part in the pathogenesis of the agranulocytosis cannot be decided. Evidence of liver damage was also observed in 2 other patients who had drug fever due to thiouracil but no agranulocytosis. Evidence of liver damage would probably be found more frequently in cases of toxic reaction to the drug, both with and without agranulocytosis, if serum bilirubin determinations and liver function studies were carried out routinely in such cases.

In 2 cases of agranulocytosis recovery followed (1) withdrawal of the drug, (2) treatment with penicillin and (3) administration of crude liver extract and of pyridoxine. We believe that withdrawal of the drug and combating the concomitant infection are essential. How much the adjunct treatment with liver and vitamin B_6 actually contributed to the cure cannot be decided. After recovery both these patients received test doses of thiouracil. One tolerated the drug, whereas the other developed leukopenia and neutropenia.

Another case of interest is that of a man with thyrotoxicosis recurring ten years after subtotal thyroidectomy. On admisssion he had a leukopenia of 2,500 to 3,000, with 35 to 39 per cent of polymorphonuclears. Review of his previous hospital record showed that the leukopenia had been present at the time of the original thyroidectomy (ten years before). Thiouracil has been tolerated by this patient, his blood count and bone marrow showing no appreciable change on repeated examination over a period of five months.

Effects of Closed Cranial Injuries.—The clinical effects of injury to the upper brain stem are not always to be clearly distinguished. In the cases with short survival periods, the specific symptoms and signs pointing to a disturbance of functions of this region are obscured by traumatic shock, by deep coma and by the effects of other associated lesions of the brain. Particularly in the case of unilateral distorting lesions with longer survival periods, the progressive development of unilateral motor signs and deepening stupor also befog the situation until late in the progress of the intracranial situation when the vital centers begin to fail. Nevertheless, the alert and persistent examiner can often find evidences of such disturbances. These symptoms may be divided into three groups: those referable to the vital functions (maintenance of respiratory and circulatory functions), pupillary changes and motor symptoms. Since the pupillary changes are but incidental, the essential syndromes will concern the vital and motor functions.—Courvill, Cyril B.: Effects of Closed Cranial Injuries on the Midbrain and Upper Pons, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

CHRONIC BRUCELLOSIS: SUCCESS OF TREATMENT WITH BRUCELLIN

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Pasteurization of every drop of milk produced today would effectively reduce to the minimum tomorrow's new cases of brucellosis in all but the few occupations concerned with handling of infected animals. However, if such a forward step could be taken to protect the general population now, it would scarcely affect thousands of persons who drank raw milk several years ago. Eradication of infection in dairy herds to prevent new cases presents many difficulties. The diagnosis and treatment of thousands of old chronic cases presents many more problems. Of course pasteurization is not yet universal. Travel between the states has increased since 1941. Early in the mobilization after Pearl Harbor certain training units in the field were obliged to purchase food for mess, including raw milk, wherever it could be found. Officers and men could thus easily have contracted brucellosis while in service. Then and now they are still unprotected from possible exposure while on furlough.

Actually the dairy industry is hard at work to eliminate brucellosis in milk producing animals, even while all such milk products are requisitioned by a wartime economy. Nearly 40,000 calves were vaccinated in the United States in the one month of April 1944. During the same month over 13,000 cattle slaughtered had been found previously to be positive reactors by blood test.[1]

Meanwhile members of the profession everywhere, both civilian and military, must remain alert to an infection especially of the milder chronic type whose beginning is so often masked or insidious. Repeated attention has been called to the appearance in this country of the more dramatic acute febrile forms of infection. It was the presentation sixteen years ago by Simpson and Frazier[2] which was directed to the largest medical audience and summarized the problem well. Yearly increases of reported cases followed. The diagnosis in such a protean disease must at any time be considered by the internist, gastroenterologist, orthopedist, neuropsychiatrist or general practitioner.

Extended use of the means of detection are being made. An appraisal of the diagnostic methods (1) clinical history, (2) blood culture, (3) serum agglutination, (4) opsonic index and especially (5) the intradermal skin test, together with (6) the therapeutic test, is my purpose in this paper.

The prevalence by survey of latent, subclinical forms of brucellosis is astonishingly high. Reasonable doubt that the health problem so represented is indeed serious might be entertained if the efficacy of tests used in such a survey could be questioned or if such figures indicated merely active immunity. But in truth a most widely disseminated, highly invasive and extremely tenacious organism is concerned. Therefore a mammoth reservoir of potential danger to national health and efficiency is at hand.

Angle[3] found the incidence by skin test in 7,122 school children to be 9 per cent. The high was actually 18 per cent in the group of 711 oldest children and among those who came largely from families which kept cows of their own. It was lowest, 1 to 2 per cent, in the Negro families which bought milk in bottles at stores. Although city dwellers are indeed often exposed, rural populations are in greatest danger. There are 57,245,000 persons living in small towns and in rural areas of the United States. Nine or even 1 per cent of such a population total, or that of any one of the several states, produces an impressive figure. Among these must certainly be some who are immune, but the rest may be ill at this time or, since the disease can last a lifetime, destined to develop symptoms at some future date. It will appear from this study that such high percentages are not absurd but reflect the tenacity of Brucella (chiefly the abortus variety), and that suffering and time lost by illness is great, but that treatment is effective if the cause is recognized.

Bacteremia may be demonstrated early in the course of many cases with fever, but the diagnosis rests chiefly on serologic and skin tests, especially in the chronic state. Blood culture requires special mediums held beneath atmospheres of 15 to 20 per cent carbon dioxide. Rarely is blood culture found positive in the chronically ill, but the significance in any case is obvious. The opsonophagocytic index is a somewhat difficult and rather needless laboratory aid for routine use.

Agglutinins begin to appear several days to several weeks after onset. For the physician the agglutination test is simply a matter of drawing blood as for a Widal or Kahn test, this to be sent to a competent laboratory. The titer in the serum may reach a height of 1:5,000 but is roughly proportional to the highest recorded elevation of temperature between 99 and 105 F. Attention must be paid to low titers, and anything above 1:40 is diagnostic. Specificity of the test is high, with false positives almost nil, the only important cross agglutination being in tularemia. Sensitivity is not very high, however, at least in relation to the antigen in use at present. Agglutination has been found negative at times when the blood culture was positive. Agglutinins if present at the onset often disappear as the infection persists, so that negatives result in at least 46 per cent of the chronically affected according to Evans,[4] and in 86 per cent according to Huddleson.[5] Such results almost invalidate the test as a diagnostic measure in the ambulatory case.

The peculiarities of the proteins of the brucella cell structure must account for the inconsistencies of the agglutinin response on single tests. Heat stable endotoxin comprises roughly 25 per cent of the cell and is accompanied by a relatively large amount of toxin enhancing lipoid. The endotoxin in man as in experimental animals produces the systemic effects of hyperglycemia followed by hypoglycemia; elevated, then lowered basal metabolism; leukopenia; subnormal temperature, and so on. This endotoxin appears to stimulate as an antigen little if any antibody. The low antigenicity may largely account for the ability of the organism to live on unharmed by the host. Brucellosis cannot be said to be self limiting.

The function of the intradermal test is to detect the presence of endotoxin in the circulation. Skin sensitivity, after bacteremia and agglutinin response, if any, is the last to appear and the last to disappear. By the

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From the Sansum Clinic.

[1] Summary of Brucellosis (Bang's Disease) W[illegible] with the Various States, United States Department of [illegible]

[2] Simpson, W. M., and Frazier, E.: Und[illegible] 63 Cases Occurring In and About Dayton, Ohio, J. A. M. A. [illegible] 1963 (Dec. 21) 1929.

[3] Angle, F. E.; Algie, W. H.; Baumgartner, L., and Lunsford, W. F.: Skin Testing for Brucellosis *(Undulant Fever)* in School Children, Ann. Int. Med. **12**: 495-502, 1938.

[4] Evans, A. C.: Studies on Chronic Brucellosis: IV. An Evaluation of the Diagnostic Laboratory Tests, Pub. Health Rep. **53**: 1507-1523, 1938.

[5] Huddleson, I. F.: Brucellosis in Man and Animals, ed. 2, New York, Commonwealth Fund, 1943.

time infection has lasted several weeks, but occasionally only after many months, certain "preparatory" changes take place in the endothelium of capillaries in the skin. (Similar allergic changes doubtless occur in other tissues as a result of alteration by, or combination with, brucella protein.) Injection thereafter of homologous protein outside the endothelial wall is followed by inflammatory changes: capillary dilatation, edema and redness, together with varying degrees of general reaction. This happens only provided homologous bacterial protein is still circulating inside these capillary walls. The patient's skin is the test tube in which conjunction of protein takes place. Thus a positive reaction signifies the continued presence of bacterial derivatives in the body regardless of whether they have or will produce recognizable symptoms. A negative test means simply skin anergy, or that no bacterial derivatives remain. Such properties of bacteria were studied by Hanger [6] and Shwartzman [7] almost simultaneously, and the "specific bacterial skin effect" observed became known as the Shwartzman phenomenon. There are of course certain quantitative limits within which the reaction is visible short of skin necrosis. As for time limits and preparatory factors it is necessary that active infection be established. The maximum reaction is reached at forty-eight hours. The class of proteins comprising animal and food allergens behaves quite differently.

Brucellergen (Huddleson,[5] p. 244) is standardized on rabbits after thirty days following inoculation with live cultures. This material for skin testing is an improvement over the earlier use of bacterial filtrates and cell suspensions. These were mixed proteins. Brucellergen is a protein nucleate solution, the test dose being 0.00075 mg. in 0.1 cc. This is 625 times the quantity of mixed protein contained in 2,000,000 brucella cells, a number used previously for skin tests. Severe skin reactions are obviated by the use of nucleoprotein. Sensitivity is moreover so high as to permit detection of at least 95 per cent of chronic cases. Thus false negatives are only 5 per cent at most, except in early cases. False positives, on the other hand, are reduced to zero and specificity is 100 per cent, since the single nucleoprotein does not react with products of common bacterial cells other than brucella. Actually it is possible to go a step further in interpreting a positive reaction than to conclude merely that brucella endotoxin is circulating. Gay [8] states that many bacterial endotoxins are incapable of giving rise to neutralizing antibodies but may give rise to antibodies reacting with the nucleoprotein. In a small trial series precipitin reactions between serum of skin positives and brucellergen were obtained by us in a dilution of the latter as high as 1 : 6,400. Skin negatives did not react. Thus the positive skin test could mean a conjunction of nucleoprotein and antiendotoxin. This explanation as a working hypothesis would satisfy every clinical situation, especially the positive test in the asymptomatic, not to mention the decreasingly intense positives in the treated patient who is recovering. The necessity of active infection as a prerequisite to the establishment of skin sensitivity rules out the one other possibility that the patient merely has been swallowing endotoxin in pasteurized milk. Data on the unimportance of swallowed dead brucella in symptom formation will be published later.

The significance of a positive brucellergen skin test has been compared to that of a positive tuberculin test. This has led to misunderstanding, since so many of the latter positives have been shown to be inactive cases. The two diseases should be contrasted rather than compared. Most important, it should be remembered that in either case the practical conclusion immediately on reading a positive is to assume that the patient has an active infection until proved otherwise. Only a careful study of either patient will finally determine whether infection is subsiding or is still active. Repeated skin tests in brucellosis after a waiting period may be used when there is doubt. The characteristic symptom complex rather than x-ray or physical findings must be relied on.

The clinical picture of chronic brucellosis or the walking patient has been adequately described in monographs [9] and in the recent reviews of Manchester,[10] Griggs [11] and many others. Perhaps the description of Evans [12] was most succinct when she compared it to "neurasthenia." She challenged the right of application of this label, and by inference that of psychoneurosis, unless chronic brucellosis was first ruled out. Since undulate they will, the symptoms are usually variable in that they alternate with well periods. In psychoneurosis actually there is a great deal more consistency. There is no fever. The aching seems to the observer to be vague, unrelated to organs or to gross anatomy. Physical examinations are negative and blood findings normal. X-ray studies are without objective architectural changes. The physician's credulity is often taxed to the point of annoyance. He becomes tempted to explain peculiar functional derangements by a term which is not synonymous with functional, namely "psychogenic." The very nature of the toxemia in this infection contributes to an invalidism, which, combined with the feeling of frustration in the years spent trying to regain health, does convey the impression of primary psychoneurosis. To differentiate conversion formation from organic reaction, psychiatric consultation is not always readily available. The busy practitioner should therefore welcome such a dependable procedure as the simple skin test. Its application may become as routine as the Kahn in the future; certainly it is indicated in any case of fatigability with muscle pains, bizarre nervousness or atypical dyspepsia.

Although no attempt will be made to discuss other forms of treatment, any method should take into account the peculiar properties of the bacterial cell involved. Brucella cultures differentiate into various rough, smooth, mucoid, virulent and nonvirulent forms. Some have a thin capsule and some have no demonstrable capsule.[13] The only consistent feature of brucella is the extraordinary versatility or adaptability of the microorganism to growth in animal tissues. For the most part the tissue changes produced are reversible, symptoms being on a chemical rather than structural basis. The pathology of brucellosis is well established, but that small foci of active infection may remain undetected during life in spleen, gallbladder, liver or lymph node seems plausible enough to be assumed in a given case.

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6. Hanger, F. M.: Proc. Soc. Exper. Biol. & Med. **25**: 230, 1927.

7. Shwartzman, G.: Proc. Soc. Exper. Biol. & Med. **25**: 560, 1928; **26**: 207, 1928-1929.

8. Gay, F. P.: Agents of Disease and Host Resistance, Springfield, Ill., Charles C Thomas, publisher, 1935, pp. 67-68.

9. Harris, H. J.: Brucellosis (Undulant Fever): Clinical and Subclinical, New York, Paul B. Hoeber, Inc., 1941. Huddleson.[5]

10. Manchester, R. C.: The Clinical Manifestations and Diagnosis of Chronic Brucellosis, Ann. Int. Med. **16**: 950-965, 1942.

11. Griggs, J. F.: Chronic Brucellosis: Diagnostic Points Noted in 100 Cases, California & West. Med. **58**: 118-124, 1943.

12. Evans, Alice C.: Chronic Brucellosis, J. A. M. A. **103**: 665-667 (Sept. 1) 1934.

13. Huddleson, I. F.: Studies in Brucellosis: I. The Presence of a Capsule on Brucella Cells, Technical Bulletin 117, Michigan State College, 1941, pp. 11-14.

If these foci are found, surgical removal would be the treatment of choice. If not found, medical management remains.

The antigen responsible for producing immunity in animals is extremely labile, being affected both by heat and by chemicals. Only the unaltered living organism produces immunity on vaccination, although Huddleson[14] has succeeded in protecting guinea pigs with a ground cell suspension in which the labile material persists. The 40,000 calves mentioned were given the attentuated culture known as strain No. 19. As yet there is not available for human use a vaccine whose toxicity is decreased and whose antigenic qualities are unmodified or enhanced. The injection of billions of heat killed cells (bacterins) has nothing to commend it in theory or in practice.

Brucellin, as prepared by Huddleson,[15] is a culture filtrate without bacterial cells. Reports of its use are not numerous, especially in a series of ambulatory cases. Used in Malta, in a controlled series of acute forms, it shortened the duration of infection considerably in 82 per cent of cases. Whereas old tuberculin is a glycerin broth, brucellin is a beef liver infusion on which virulent smooth strains of melitensis, suis and abortus have grown for three months. After filtration and sterility tests, 0.5 per cent phenol is added. It contains no endotoxin. After administration in the infected, the "negative phase" with exaggeration of all symptoms is but temporary. The active principle or antigen in such a protein mixture by its very nature defies more exact chemical description but seems to be a nucleoprotein (not identical with brucellergen). At any rate immune response is encouraged, since there is elevation of temperature and perhaps a creation of (neutralizing ?) antibodies.

TABLE 1.—*Results of 1,065 Skin Tests*

Total past or present infection	146
Positive skin test	141 (13.2%)
Negative skin	5 (3.4%)
Treated with	97
Brucellin plus	4
Heat killed vaccine	5
Refused treatment	4
Not treated	36 (25%)

CLINICAL MATERIAL

The brucellergin skin test has been performed on over 1,800 clinic and hospital patients during the past two years, until it has become an almost routine procedure. Results of the first 1,065 tests done between March 6, 1943 and Dec. 6, 1944 are given in table 1. No skin necroses were produced even with the full dosage, although several showed intense vesiculation. Of the original group of 146 cases in which the diagnosis of past or present infection was made, no specific treatment was given in 36, or 25 per cent. It is probable that several of these should have been treated, in the light of present knowledge. Seven persons who returned one year later and who had a second positive skin test are included in the first series of 97 treated. Only a small fraction of positives are not given specific treatment at this time, a few of course having as serious a coincident pathologic condition as carcinoma for contraindication.

A detailed clinical history was taken and physical examination with tentative diagnosis was made on admission. All laboratory and x-ray studies then proceeded while the result of the skin test was being awaited. Effort to elicit definite history of raw milk consumption or contact with infected herds was met with success a few times, but denial of exposure obviously had no value. All occupations were represented. Sexes were almost equal. Ages were predominantly in the forties. One, a boy of 13, had a seven year history and previous ineffective treatment with bacterins. Several persons were past 65. Average duration of symptoms, excluding 1 case of three months and 1 of twenty-eight years, was slightly over three years. Chief complaints were as reported by others: (1) fatigability, (2) aches and pains, (3) nervousness and (4) indigestion, dyspepsia, bilious spells, bloating and constipation. Abnormal fatigue was invariably listed in every history, but one of the other symptoms often held sufficient prominence to be mentioned first.

THE SANSUM CLINIC
SCHEDULE AND RECORD
for BRUCELLIN Injections

Name..

No. Date: Dose: Route: Reactions...............
Fever ?

1 .... 0.05 cc. or .... cc. intradermal ....
2 .... *0.10* cc. or .... cc. subcutaneous..................................
3 .... *0.15* cc. or .... cc. subcutaneous or intramuscular...........
4 .... *0.20* cc. or .... cc. *subcutaneous or intramuscular*...........
5 .... *0.25* cc. or .... cc. subcutaneous *or intramuscular*...........

A report to the doctor by letter or phone is suggested here.

6 .... *0.30 cc. or* .... cc. ....
7 .... *0.35 cc. or* .... cc. ....
8 .... 0.40 cc. or .... cc. ....
9 .... 0.45 cc. or .... cc. ....
10 .... *0.50 cc. or* .... cc. ....

Reactions expected are chills, temperature *rise of 2 to 4* degrees with exaggerations of symptoms as aching, *indigestion or constipation*, these subsiding in one to three days.

Liberal use of aspirin, *fruit juices and light carbohydrate* midmeal feedings suggested.

As the number of injections *increase the degree of systemic reactions decreases until at the* end of eight to fifteen injections there is almost no reaction except local redness. *A rest period of two months may be* taken then, a second course with the *first small injections of 0.1 cc. or less being repeated if* symptoms have again arisen.

Skin test to determine the presence of circulating *endotoxin antigen* by means of nucleoprotein, "brucellergen," *may be done two, three* or six months after the final injection.

....M.D.

Date....................194.....

Afternoon admission temperatures were usually normal or slightly subnormal but in one third of the cases were between 99.2 and 99.8 F. In a single instance of daily fever for three years the temperature was 100 F. This patient was skin negative, but there was positive serum agglutination in a dilution of 1:320. She became skin positive six months after treatment began, the degree of reaction declining in subsequent tests after improvement. Weight was normal in half the cases, below normal 10 to 20 pounds in one fourth and above normal in the remainder.

Physical examinations were without objective findings except the occasional mention of reddened eyelids or sallow complexion. Attempts to palpate enlargement of the spleen met with success in but 2 cases. Sedimentation rates were usually normal. Basal rates were usually slightly below normal. Blood tests for agglutination were kept at a minimum to avoid taxing available laboratory facilities. In a group of 75 patients the agglutination was positive in only 24, or 32 per cent, and the titer only 1:25 in 4 of these. Thus the percentage of frank positives was only 26. Blood culture done on a number of occasions was invariably negative. Opsonophagocytic indexes were omitted as too time consuming if not actually superfluous.

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[14] Huddleson, I. F.: Studies in Brucellosis: II. The Immunization of Guinea Pigs Against Brucella Infection, Technical Bulletin 182, Michigan State College, 1943, pp. 45-56.

[15] Huddleson: Brucellosis in Man and Animals, pp. 141, 154 and 162.

Since many patients did not reside in the city, these were supplied with brucellin and given a printed schedule of suggested dosage for the physician's use at home. Seventeen persons received all injections at the clinic. The initial dose was 0.05 to 0.1 cc., depending on the severity of the skin test reaction, and this initial dose given intradermally determined the patient's reactive ability. Very rarely was it necessary to dilute the brucellin. The patient was warned that he might expect a chill, fever, and an exaggeration of his symptoms. This appeared in eight to twelve hours after a subcutaneous and within four hours after an intramuscular injection. Reaction symptoms subsided in two or three days and decreased in severity as the number of injections increased. When almost no systemic reaction was obtained after a series of perhaps ten to twelve weekly injections a rest period was advised. The level of immunity so obtained was sufficient to neutralize subsequent, now milder, attacks, but repeated courses of brucellin were given if symptoms recurred instead of decreasing. One course would last two to six months, after which subsequent skin tests were performed when possible, a positive test being followed by additional injections if symptoms persisted.

REPORT OF CASES

Case 1.—B. L., a man aged 43, a dock foreman, whose weight was 235 pounds (117 Kg.) and height 75 inches (191 cm.), was admitted to the Sansum Clinic Aug. 10, 1943 with the chief complaint of tiredness for three years. Several days at a time he would feel quite well but suddenly again would feel "terrible." He explained each attack of abdominal pain or soreness as if the food did not digest but stopped in the stomach, causing bloating and constipation. During attacks he became irritable, short tempered and worried over minor problems. Three years previously he had had "flu" most of one winter, with congestion in his chest, and he said he "could hardly drag around" at night. Six months afterward there appeared a mild degree of jaundice without pain but with extreme fatigue. Muscular effort later began to be followed by chills and then fever. There had been occasional dry hacking cough since the jaundice, recurrent constipation, occasional difficulty in starting the urinary stream and a decline in sexual potency. The generalized urticaria of recent months was slightly relieved, he thought, by following advice to omit all milk. He had consumed raw milk by preference, obtained from a large metropolitan dairy three years previously and to a lesser extent since.

The admission afternoon temperature was 98.6 F. Physical examination revealed that the patient was well built with a few scattered large urticarial wheals on the skin, slightly reddened eyelids and dry lips. There was slight tenderness over the gallbladder, cecum and transverse colon. The abdominal reflexes were absent. His blood pressure was 150/88.

Blood count was 5,380,000 red cells, 17 Gm. or 108 per cent hemoglobin and 6,900 white cells with 63 per cent polymorphonuclears. The icterus index was 10.5, the Kahn reaction negative, brucella agglutination positive in a 1:50 dilution. Fasting blood sugar and four hour oral glucose tolerance readings were 82, 102, 106, 96 and 72 mg. per hundred cubic centimeters respectively. Urinalysis was normal. An Ewald test meal showed free acid of 25 degrees with a total acid of 30 degrees. Gallbladder studies after Priodex orally showed excellent filling with the dye, only 30 per cent emptying, and three small opaque stones 3 mm. in diameter in the fundus. Only 0.08 cc. of brucellergen was used for the skin test. The reaction was 5 plus in forty-eight hours with general reaction and a wheal measuring 5 by 10 cm.

Brucellin was given every two weeks by us in the clinic. The first injection of 0.05 cc., intradermally, was followed in ten hours by a chill and a temperature of 102 F. Next morning it was 99.8 F., rising in the evening to 101 F. Although headache and prostration were severe the patient was feeling much better by the fourth day. After the second injection of 0.1 cc. subcutaneously there was a chill, rise in temperature to 101 F. by morning and 103 F. by evening and then a drenching sweat. He was unable to work for five days. His eyes were red and swollen; of all symptoms the indigestion and the urticaria were the most severe. The second week he improved. Reactions gradually became less troublesome; urticaria disappeared. To the tenth injection of 0.6 cc. there was no reaction. Three weeks later, Dec. 26, 1943, he appeared for examination stating that he "felt like a million dollars." He had declined a gallbladder operation. Nine months after recovery he was still working and had no complaints. At eleven months there occurred an attack of indigestion again. Dec. 26, 1944 a skin test was 3 plus, without general reaction. He immediately began a course of brucellin, reacting only to the first dose in a series of five injections. He then had a cholecystectomy performed by his family physician, Dr. Walter Boyd of Long Beach, Calif., March 18, 1945. He made a rapid recovery from the operation.

The foregoing could be called the textbook description of chronic brucellosis with a full recital of symptoms referable to all tissues. Treatment reactions are typical. It also illustrates probably the most common route of invasion (jejunal mucosa, lacteals, liver) and focal point for persistence of infection. This focus can be held almost completely in abeyance for many months only to light up again suddenly.

Case 2.—J. T., a man aged 54, a salesman, whose weight was 173 pounds (78.5 Kg.) and height 66 inches (168 cm.) was admitted to the clinic Sept. 1, 1943 complaining of burning pain in the chest for one year. Onset was gradual with heartburn and stomachache, worse since a severe head cold three months before. The pain, which was now unremitting, was localized just to the right of the sternum. He was unable to walk a block without feeling so weak as to be able barely to stand; he had become slightly yellow he thought; he did not perspire; his heart pounded on exertion. He had drunk goat's milk three months previously at a neighbor's suggestion but recalled having not felt well for at least two years.

On admission the temperature was 98.6 F. Physical examination revealed that the patient was overweight, not dyspneic but looking chronically ill. The skin was dry and pale, with numerous small patches of psoriasis. The heart tones were of only fair quality; there were no murmurs; the rate was 104, regular. There was very slight tenderness over the gallbladder. The blood count was 6,250,000 red cells, hemoglobin 16.5 Gm. or 103 per cent, and 11,100 white cells with 64 per cent polymorphonuclears. The Kahn reaction was negative. The fasting blood sugar was 136 mg., the blood uric acid 1.9 mg. and serum cholesterol 310 mg. per hundred cubic centimeters. An electrocardiogram showed a deep Q_3 equal to R_3 with T_3 sharply inverted. The brucellergen skin test was 4 plus. Agglutination was negative, December 20.

He was placed on a reducing diet without insulin, aminophylline 3 grains (0.2 Gm.) every four hours and brucellin every two weeks. Little reaction and no relief of pain followed the first few doses, but to the seventh injection of 0.45 cc. the response was a temperature of 103 F. During this time he developed a generalized eczematous dermatitis, but the constant chest pain gradually disappeared. Feb. 1, 1944, four months after treatment began, he stated that he was "100 per cent well." He resumed traveling. He received three courses of brucellin, twelve, six and four doses. Each course followed a skin test progressively less positive. Fourteen months after admission the skin test was entirely negative. Three subsequent electrocardiograms made Dec. 20, 1943, Aug. 14, 1944 and Feb. 23, 1945 were essentially the same as on admission, with minor temporary improvements in Q_3 and T_3, but the patient appeared well, had no pain, and felt no fatigue. The dermatitis disappeared slowly but completely.

This patient still has coronary disease and he has been advised to regulate his life accordingly. The added burden of infection has apparently been removed.

Case 3.—J. B., a woman aged 52, a housewife, was first admitted to the Cottage Hospital Oct. 31, 1930, at which time she complained of attacks of stomach trouble, constipation, nervousness, headaches, dizziness and palpitation of one year's duration. Alternating with well periods these "bilious attacks" produced epigastric pain together with exaggeration of many other complaints, including a feeling of pins and needles in the extremities. Physical and laboratory examinations at that time were not remarkable, and complete x-ray studies of the gallbladder and gastrointestinal tract were negative. Temperature readings above normal on four occasions during thirty days' hospitalization were only 99.2, 99.4, 99.6 and 99.8 F. The second admission nearly fourteen years later was June 15, 1944. There were exactly the same complaints with emphasis on constipation and insomnia, and they were almost continuous. Her constant fretting in the hospital now made life miserable for the nurses, who tolerated her spoiled child attitudes only because they also knew she wept for her only son as a prisoner on Bataan. She had little desire for food but was only 7 pounds (3.2 Kg.) underweight, as compared to 15 pounds (6.8 Kg.) on the previous admission. Gallbladder, stomach, small bowel, and colon x-ray studies were again negative. The brucellergen skin test June 20, 1944 was 2 plus in twenty-four hours and 4 plus at forty-eight hours, with a slight general reaction. Agglutination was negative.

Table 2.—*Results of Brucellin Treatment*

	Number	Per Cent
Unimproved	8	10.3
Moderately improved	22	28.2
Greatly improved	48	61.5
Total	78	100.0

To the first dose of brucellin, 0.1 cc., she reacted with a temperature of 100.4 F. Headache was increased. One week later she was sleeping better and seemed cheerful. She was discharged June 29, 1944, and the injections were given at home by her physician. She telephoned every week and returned on two occasions to report that the injections, nine in all, produced decreasing reactions and that she felt perfectly well and took no sedatives or laxatives. She wanted to apologize to the nurses for the way she acted in the hospital. Her cheerfulness amazed and delighted her friends. Ten months later, April 15, 1945, she telephoned to say she was having some aching pain in her legs. She was advised to take a small course of brucellin and reported after the third dose that only the first injection produced any reaction, that she now felt very well and that she had gained 15 pounds since the beginning of treatment.

It is amazing that symptoms should persist for fifteen years without increasing appreciably in severity but only in frequency. There was ample reason for her to appear psychoneurotic. The melancholia, which might have been called involutional, reached even to suicidal notions. The situation is now quite reversed in that she holds up her husband in their grief over the loss of their son.

Case 4.—E. W., a man aged 65, a butler, entered the Cottage Hospital Oct. 10, 1943 complaining of a swollen right knee for several weeks. He walked with a cane, but there was relatively little actual pain and no tenderness in the one joint area. He weighed 240 pounds (109 Kg.). The temperature was normal. His blood pressure was 156/90. X-ray of the knee was negative, as was a gallbladder study. Blood count was 4,020,000 red cells with 90 per cent hemoglobin, and 9,150 white cells with 63 per cent polymorphonuclears. The sedimentation rate was 6 mm. in one hour. The serum cholesterol was 286 mg., the blood uric acid 3.8 mg. The basal metabolic rate was plus 8. The electrocardiogram showed left axis shift. Twenty-four hours after the brucellergen skin test the knee was much worse; at forty-eight hours the skin reaction was 4 plus, but he felt better. An Ace bandage was applied to the knee. Brucellin was begun October 28 with a dose of 0.1 cc. He returned in a week believing that the knee would have to be opened on the outer side, where there was increased swelling and a red area measuring about 5 by 10 cm. There was no fluctuation. Brucellin was increased, and after the third injection the strength and flexibility of the knee had improved. He walked without a cane after two more and then received a total of only seven injections, the highest single dose being 0.9 cc.

This shows in a local area what may occur on a larger scale at the origins or the insertions of muscles, explaining in part the muscular weakness and disability so common in this infection.

RESULTS OF TREATMENT

Of the 97 patients treated with brucellin all but 19 have completed at least one course of injections, responded to follow-up inquiry or returned for examination and have gone at least six months without return of symptoms. Results are given in table 2. Three of the eight listed as failures discontinued treatment after five injections. One was unchanged after fifty injections.

Twenty-two of the 78 persons followed, or 28 per cent, were moderately improved. One was diabetic, 1 hypertensive, and 1 a chronic alcoholic addict. If some may have broken off treatment too soon because of early severe and unpleasant systemic reactions, others probably reacted too mildly to insure the production of higher immunity. All in this group were, as the adjective implies, improved in definite measure but without achieving the enthusiasm or self assurance of improvement shared by the next group. Search for hidden persistent foci perhaps should be most diligently made in the moderately improved case, and even more simplified easily controlled means of therapy welcomed.

Forty-eight of the 78 persons treated, or 61 per cent, were greatly improved. This included 6 whose skin tests after treatment and a waiting period were negative and might be listed as "cured." Most of these patients reacted violently to early injections and made an immediate improvement, which steadily increased until such a time as there was no longer any doubt in their own minds that they were well. Recurrences in this group might not be expected until several months had elapsed, but only by a plan of constant checkup of skin reaction could this be controlled. Such a plan is being followed.

COMMENT

Nearly as many additional cases as in this first series are being treated at this time. Results are substantially the same. Irradiation of abdominal lymph nodes or the spleen has been done in those cases whose level of immunity does not rise rapidly as evidenced by weak febrile response to early injections of brucellin or to later "booster" doses. A report of the results in these cases will appear later. Data are being accumulated from findings at exploratory operation for coincident pathologic conditions which may throw some light on the location and size of focal areas of chronic infection. So far the evidence of visible and palpable pathologic change is so meager as to inculpate the spleen, whose smooth surface may conceal small abscesses within, as much as the gallbladder, which may carry the organism in its reservoir. Possibly splenectomy should be contemplated as often as cholecystectomy.

Exactly how brucellin works and of what immunity in brucellosis consists cannot yet be stated with certainty. As a protein solution it doubtless gives rise to certain antibodies. The procedure is not a matter simply of desensitization. The hypothesis that brucellin antibodies neutralize endotoxin and hold in check the growth of brucella is at least practical in that it describes the changes taking place in the improved case. This improvement is sufficiently rapid in a high enough percentage of cases to serve as another aid in the diagnosis of the cause of elusive, enigmatic symptoms, which, however real to the patient, may otherwise be only a riddle to the most careful consultant. Complete cure finally may have to wait on additional even untried methods of treatment.

SUMMARY AND CONCLUSIONS

1. Brucellosis is one of the most prevalent of modern diseases.
2. The intradermal skin test is the most reliable means of confirming the clinical diagnosis of chronic brucellosis.
3. Of 1,065 persons tested, 13.2 per cent showed a positive reaction to brucella nucleoprotein.
4. Seventy-five per cent of all positives in this series were considered to have persistent infection and were actively treated.
5. Of 97 cases treated with "brucellin," 78 were followed adequately, with 70 cases improved and 8 unimproved.
6. The skin test should be repeated every six months with the expectation that only a negative reaction denotes a cure.

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RANGE OF BLOOD PRESSURE IN HYPERTENSION

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The variability of the blood pressure poses numerous problems in the evaluation of subjects with hypertension. Thus, in estimating prognosis and the response to treatment, and in examining candidates for military service or insurance, it is well recognized that casual readings of the blood pressure may be misleading. Numerous reports have called attention to the lability of the blood pressure in hypertensive subjects.[1] It is our purpose in this report to emphasize the desirability of recording the blood pressure, particularly in hypertensive subjects, in terms of maximum and minimum range rather than as an individual reading, and to suggest a simple procedure whereby this may be accomplished.

As mentioned in a previous report in THE JOURNAL,[2] various pressor and depressor agents have been employed to study blood pressure responses in normal persons and in hypertension. The rise in blood pressure has been investigated following tyramine, epinephrine, pitressin, tobacco smoking, physical work, painful and irritant stimuli, exercise of muscles with circulation arrested, prostatic massage, immersion of the hands in cold water, anoxemia, inhalation of carbon dioxide and breath holding.[3] Methods employed to provoke a fall in blood pressure include oral barbiturates such as barbital, and sodium amytal, intravenous pentothal, hyperventilation, carotid sinus pressure, histamine, acetyl-beta-methylcholine, amyl nitrite, sodium nitrite, spinal anesthesia and bed rest for a period of twenty-four hours with observations during sleep.[4]

Most of these procedures are not well suited for routine clinical use. The cold pressor test has been widely employed to detect a "prehypertensive state," an exaggerated rise above the initial level supposedly indicating a constitutional predisposition to hypertension.[5] The validity of this interpretation has been questioned,[6] but pressor tests are useful as a measure of a person's "ceiling" blood pressure level. The simplest of the pressor tests is breath holding, and of the depressor procedures hyperventilation and carotid sinus pressure. Whereas breath holding raises the blood pressure, hyperventilation causes a fall.[7] Pressure on the carotid sinus likewise decreases the level of the blood pressure, particularly in hypertensive subjects.[8] A study was carried out in 30 cases of essential hypertension to determine the practical utility of these tests.

In each case the pressor effect of breath holding was compared with the cold pressor test; and the depressor response to hyperventilation, pressure above the carotid sinus and combined hyperventilation plus carotid pressure was compared with the effect of 9 grains (0.6 Gm.) of sodium amytal given hourly in 3 grain (0.2 Gm.) doses as recommended by Allen and Adson.[9] Comparison was made also with the maximum and minimum arterial pressures recorded during the period of hospitalization. In 18 cases, including 13 from the aforementioned series, further investigation was made of the pressor response to brief inhalation of aromatic spirit of ammonia compared to the breath holding pressor response.

The technic employed in the breath holding and hyperventilation tests was as follows: At the end of a normal expiration the subject was instructed to stop breathing without straining. After twenty seconds of apnea the highest systolic pressure was recorded. The subject was then permitted to breathe normally for a few moments and the test was again repeated, this time

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(Footnotes continued on next page)

the highest diastolic level being recorded after twenty seconds of apnea. Most persons find it difficult to refrain from breathing for more than thirty seconds when respiration is suspended in expiration, and because of the rapid changes in blood pressure it is preferable to observe the systolic and diastolic rise on separate tests. Because of the difficulty some persons, particularly older subjects, experience in maintaining apnea for sufficient time to record blood pressure changes, an additional simple pressor test was employed. A piece of gauze saturated with aromatic spirit of ammonia was held over the nose, and the blood pressure was determined during brief inhalations of this irritant. This test has an advantage over the breath holding test in that it does not require cooperation, and the pressor response is not so transient as with the breath holding test, so that the rise in blood pressure may be more accurately recorded.

TABLE 1.—*Average Blood Pressure Responses in Thirty Cases of Essential Hypertension*

Routine Readings During Hospitalization	Initial Reading	High	Low	Change from Initial Reading: Systolic	Change from Initial Reading: Diastolic
		208/124	174/104		
Breath holding	181/110	208/133	....	+27	+23
Cold pressor test	187/112	211/130	....	+24	+18
Hyperventilation	187/114	....	171/103	—16	—11
Carotid pressure	190/116	....	169/101	—21	—15
Hyperventilation plus carotid pressure	187/113	....	157/ 94	—30	—19
Sodium amytal	189/114	....	151/ 97	—38	—17

After performing the pressor test the subject was instructed to breathe maximally with deep inhalations and exhalations at a slightly rapid rate without effort or straining. The blood pressure was recorded after thirty to sixty seconds of hyperventilation. With the patient still breathing deeply, digital pressure was applied over the carotid sinus, preferably the left, and the lowest blood pressure attained during the next half minute was recorded. The patient should be apprised as to the nature of the carotid pressure test before it is carried out, so that a psychic reaction to neck pressure is avoided. The depressor response following carotid sinus pressure occasionally persists for several minutes, and therefore the pressor response should be tested first. The maximum and minimum levels attained during the pressor and depressor tests are recorded, e. g. as 208/133-157/94. Because of occasional significant differences in blood pressure in the two arms,[10] all readings should be made in the same arm, preferably the right arm. Diastolic readings as here reported are recorded at the fourth phase. The entire test occupies less than five minutes and no preparation is necessary.

The findings in the series of 30 cases studied are summarized in table 1, together with the highest and lowest routine readings during hospitalization and the response to the cold pressor and sodium amytal tests.

The average maximum blood pressure levels attained with the breath holding and with the cold pressor tests were similar (breath holding 208/133, cold pressor 211/130) and correspond closely to the highest blood pressure recorded routinely during the period of hospitalization (208/124). Most frequently the admission blood pressure was highest; indeed, the initial blood pressure reading on physical examination may be regarded as a psychic pressor test and has been recognized as having the same significance. In 18 cases the pressor effect of ammonia inhalation and of breath holding was compared (table 2). The rise in diastolic pressure was similar (ammonia 24 mm., apnea 22 mm.) but the increase in systolic pressure was distinctly greater with ammonia inhalation (ammonia 37 mm., apnea 27 mm.). Stimulation of the trigeminal nerve by ammonia inhalation, as Allen[11] has shown experimentally, not only provokes a decided rise in blood pressure but causes involuntary suppression of respiration. The striking pressor effect observed with ammonia inhalation may therefore in part be due to apnea in addition to trigeminal stimulation. In normal persons, as shown by Bing,[12] inhalation of irritants such as acetic acid or ammonia ordinarily raises the blood pressure approximately 10 mm., only exceptionally as much as 20 to 25 mm.

Hyperventilation alone reduced the blood pressure from 187/114 to 171/103. Carotid pressure alone caused a fall from 190/116 to 169/101. The effect of hyperventilation combined with carotid pressure was distinctly greater than with either procedure alone, the blood pressure falling from 187/113 to 157/94. These findings correspond fairly closely to the results obtained with 9 Gm. of sodium amytal, in which the blood pressure fell from 189/114 to 151/97. With hyperventilation plus carotid pressure the average fall in systolic pressure was 30 mm. compared with 38 mm. with sodium amytal. The fall in diastolic pressure was

TABLE 2.—*Pressor Effect of Ammonia Inhalation and Breath Holding (Eighteen Cases)*

Initial Reading	Final Reading	Change: Systolic	Change: Diastolic
176/104	213/128	+37	+24
175/104	202/126	+27	+22
181/105	146/ 87	—35	—18

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slightly greater with hyperventilation plus carotid pressure (19 mm.) than with sodium amytal (17 mm.).

The greater fall in systolic pressure obtained with sodium amytal may be attributed in part to a decrease in cardiac output. Blood pressure is influenced not only by vasomotor control of the arterioles but also by systolic cardiac output and the heart rate. While in certain individuals carotid sinus pressure causes a definite sinus bradycardia, this factor did not contribute significantly to the depressor effect in the cases studied. When pressure is exerted on the left rather than on the right carotid sinus, slowing of the heart rate is negligible although the depressor response is equally great. In 2 subjects in whom definite bradycardia developed on carotid sinus pressure, intravenous administration of atropine $\frac{1}{50}$ grain (0.0013 Gm.) prevented slowing of the heart rate but did not inhibit the fall in blood pressure. Mandelstamm and Lifschitz [13] likewise found in an extensive study that the depressor effect of left and right carotid sinus pressure was the same and that administration of atropine prevented slowing of the heart rate but did not influence the fall in blood pressure. Similar observations were made by Galdston and his associates,[14] who noted further that following administration of atropine the fall in arterial pressure on carotid sinus stimulation was in fact often greater than before its injection. The depressor effect of overventilation is not due to the mechanical effect of respiration on the circulation, for no fall in blood pressure occurs if hyperventilation is carried out with air containing carbon dioxide.[3] As shown by Dale and Evans,[15] carbon dioxide is necessary for the normal functioning of the vasoconstrictor center, and the blood pressure changes with apnea and overventilation are to be attributed to the specific effect of carbon dioxide on the vasomotor center.

COMMENT

In a recent review of normal blood pressure and its variations by Allen [16] it was emphasized that "a single measurement of blood pressure, especially in a person who is anxious or emotionally unstable, can have little value. . . . The only way in which to learn all the facts about blood pressure is to make readings at frequent intervals during the day and night, and daily over a period of at least a week." Employment of the procedures suggested in this study, i. e. blood pressure determination during breath holding or inhalation of spirit of ammonia and during hyperventilation plus carotid pressure, makes it possible to obtain information concerning the range of blood pressure in much simpler fashion. These tests may be carried out with little more time or effort than is required to record the blood pressure on routine examination. The breath holding and ammonia blood pressure levels are as high as or higher than the cold pressor "ceiling." Conversely the depressor effect of hyperventilation plus carotid pressure is similar to that of sodium amytal, which has been regarded as the best of the depressor tests.[17]

Pressor, and particularly depressor, tests are of value not only in estimating the status of the hypertensive subject but also in the selection of therapeutic measures. Thus, Allen and Adson [18] find that "the more nearly the blood pressure approaches normal as a result of rest, administration of sodium amytal and the injection of pentothal, and the less marked the vascular disease the more likely extensive sympathectomy is to reduce the blood pressure significantly. . . . When blood pressure is not reduced markedly it is useless to perform extensive sympathectomy for essential hypertension."

The procedures employed to study blood pressure responses, i. e. hyperventilation, pressure above the carotid sinus, administration of barbiturates, spinal anesthesia and observation of blood pressure on prolonged bed rest and during sleep, all operate by decreasing vasomotor tone and give the basal blood pressure relatively free of the influence of the vasomotor center. Conversely, pressor tests such as immersion of the hand in cold water, inhalation of carbon dioxide and breath holding accentuate vasomotor activity by stimulating the vasomotor center. It becomes possible, therefore, employing the breath holding pressor test and the hyperventilation-carotid pressure depressor test to differentiate the vasomotor or neurogenic component in hypertension from the humoral factor, whose maximal effect presumably is indicated by the basal blood pressure free from vasomotor influence.

In renal hypertension the blood pressure is relatively fixed and is but slightly influenced by pressor and depressor procedures, in contrast to essential hypertension.[19] These findings in renal hypertension indicate that the basal blood pressure is set at a high level by the humoral renal pressor mechanism and that the vasomotor or neurogenic component is relatively negligible. It is of interest that in essential hypertension, unlike renal hypertension, the blood pressure falls to a much greater degree with depressor tests. A spontaneous fall in blood pressure to normal occurs very frequently in essential hypertension. Fifty-six per cent of 76 unselected, untreated cases studied by Ayman exhibited this finding.[20]

An average diastolic pressure of 91 was attained with hyperventilation plus carotid pressure in the 35 cases studied. This is but slightly above normal limits. In fully 20 of the total of 35 subjects in whom pressor and depressor responses were investigated, the minimum blood pressure fell to well within the normal range. In these 20 subjects with an average maximal blood pressure of 203/118 the minimum pressure on depressor testing average 122/75. The attainment of normal blood pressure in the majority of cases by inhibition of vasomotor control suggests inescapably that, in the earlier stages of essential hypertension at least, the humoral factor does not play an important role and that the neurogenic or vasomotor component is the more important determinant in the elevation of blood pressure.

Vasomotor control of arteriolar tonus is exerted chiefly in the splanchnic area. The observations of Jansen, Tams and Achelis [21] indicated that the vasoconstriction producing hypertension is confined chiefly to the splanchnic area. This concept, questioned by

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some,[22] has been sustained by the more recent studies of Eichna and Wilkins, Abramson and Fierst, Sheard and his associates and Apperly and Cary [23] These investigators have demonstrated an unequal distribution of blood flow in hypertension with augmented circulation to the extremities, signifying splanchnic vasoconstriction. As pointed out by Abramson,[24] these observations weaken the hypothesis that hypertension is due to a humoral vasoconstrictor substance, for under such circumstances generalized arteriolar vasoconstriction would be expected to occur, involving the extremities as well as the remainder of the vascular bed.

Further evidence that vasoconstriction is limited chiefly to the splanchnic area in hypertension is afforded by the distribution of sclerosis in the arterioles. Arteriolosclerosis, which follows prolonged vasoconstriction in hypertension,[25] occurs preponderantly in the abdominal viscera, i. e. the kidney, spleen, pancreas and liver.[26] The terminal arterioles of the other organs, excepting the brain, are rarely involved in the arteriolosclerotic process and then to only an insignificant extent.

The regular findings of arteriolosclerosis in the kidneys of hypertensive subjects at necropsy suggested, after Goldblatt's demonstration that renal ischemia could produce hypertension experimentally,[27] that renal ischemia might also be the basis of human hypertension.

It has been shown by Page and his co-workers [28] and by Braun-Menendez and his associates [29] that the kidney liberates a proteolytic enzyme (renin) into the blood stream which acts on one of the blood globulins (a_2 globulin) to produce a polypeptide with a pressor effect (angiotonin, hypertensin) An increase in circulating renin and angiotonin has been reported in experimental renal ischemia [30] and clinically in eclampsia and severe glomerulonephritis [31] Another pressor mechanism has been demonstrated in the ischemic kidney, i e. the production of pressor amines by decarboxylation of certain aromatic amino acids.[32] In the presence of adequate oxygen such pressor amines are converted to inactive aldehydes by renal amine oxidases

There is no evidence, however, that either the renin or the pressor amine mechanism is the cause of human hypertension. Renin is not found in the blood in essential hypertension [33] (although it is observed in renal hypertension as in severe glomerulonephritis), nor is there an increase of the globulin substrate precursor of angiotonin in essential hypertension.[34] The questionable role of humoral pressor substances in hypertension is suggested further by the failure of extensive transfusions from hypertensive subjects to cause any elevation of blood pressure in the recipients [35]

If essential hypertension were due to a humoral pressor substance one would expect widespread vasoconstriction of the vascular bed. However, the vasoconstrictor in essential hypertension is limited to the vessels under most active vasomotor control, i e the arterioles, and as already mentioned is most striking in the splanchnic bed In nephritic hypertension, in eclampsia and in malignant nephrosclerosis (hypertension with renal insufficiency), as Fishberg [36] remarks, "there is often a high degree of accompanying capillary and venular constriction, so that the patient appears pale," whereas "in the benign phases of essential hypertension there is relatively little accompanying capillary and venular constriction, for which reason the patient may appear ruddy." This distinction provided the basis for Volhard's classification of hypertension into pale and red types,[37] a concept which is supported by the recent demonstration of circulating pressor substances in renal but not in essential hypertension The pressor amines cause generalized vasoconstriction,[38] and while the effects of angiotonin more closely resemble those of human essential hypertension, angiotonin causes vasoconstriction of the pulmonary arterioles, whereas this does not occur in human hypertension [39]

Conclusive evidence that renal ischemia with its attendant pressor effect is not responsible for essential hypertension is afforded by several studies demonstrating that renal blood flow in this condition is normal [39]

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This is consistent with pathologic studies based on renal biopsy obtained during sympathectomy in which no evidence of renal arteriolosclerosis was found in the earlier stages of essential hypertension.[40] It is evident, therefore, that arteriolosclerosis of the kidneys and renal ischemia cannot be responsible for the genesis of essential hypertension. The role of the kidney in essential hypertension has been thus summarized by Smith and his collaborators:[41] "So far as the genesis of essential hypertension is concerned, the kidney appears to be the victim rather than the culprit." Page[42] expresses a similar view: "The evidence taken as a whole offers little support for the view that persistent reduction of blood flow and oxygen utilization occurs within the kidneys except when hypertension is of long duration and severe secondary vascular change has supervened."

In later stages of essential hypertension renal arteriolosclerosis occurs constantly, with a decrease in renal blood flow paralleling the severity of the vascular changes in the kidneys.[43] With the development of organic lesions in the renal arterioles and decreased renal blood flow in long standing essential hypertension and in malignant hypertension it is likely that the renal pressor factor may come to play a role in hypertension. That a humoral component is important in the later stages of hypertension and particularly in malignant nephrosclerosis is indicated by the failure of depressor agents acting on the vasomotor center, or sympathectomy, to influence beneficially the elevated blood pressure.[18] Page,[42] employing perfusion of the rabbit's ear, has shown that a protein vasoconstrictor substance similar to angiotonin occurs in human serum after a wide variety of renal injury causing hypertension and is regularly present in the malignant phase of essential hypertension. He suggests that determination of this peripheral vasoconstrictor substance gives an indication that the humoral mechanism has come into action.

Consideration of the renal pressor and depressor mechanisms has been concerned chiefly with their significance in hypertension. While these agents do not appear to play a part in the etiology of hypertension, it is possible that they perform an important physiologic function in the normal individual. The blood pressure influencing agents of the kidney may normally function in maintaining the basal "vital" level of the blood pressure. Superimposed on this, a variable control is exercised by the vasomotor center in response to requirements determined by physiologic and environmental changes. The two components may be distinguished by employing the tests already suggested.

Renin is not a pathologic constituent, for it has repeatedly been demonstrated in extracts of renal tissue since Tigerstedt and Bergmann's original experiments in 1898. This proteolytic enzyme apparently is a normal enzyme of renal tissue, i. e., a cathepsin. Under abnormal metabolic conditions in the kidney which are known to produce hypertension (e. g., ischemia due to arterial or venous obstruction, toxic interference with function as in glomerulonephritis, mechanical interference with function as in urinary tract obstruction, functional overloading as in extensive extirpation of renal tissue), the proteolytic enzyme renin may be passed into the circulation in increased amounts, possibly as the result of altered permeability of the renal cells. That an increased loss of normally present renin, rather than an increased production, occurs is suggested by the finding of increased amounts of renin in the circulation in acute experiments, as in renal ischemia produced by hemorrhage or clamping the renal artery.[30]

Increasing doubt that the kidney plays a primary role in the genesis of hypertension focuses attention on other factors as a cause of the heightened vascular reactivity. Conceivably, the increased pressor response to such agents as carbon dioxide and painful (cold) and irritant (ammonia inhalation) stimuli might be due to a local increased sensitivity of the arterioles themselves to pressor stimuli. Fatherree and Brown[44] have shown, however, that there is no essential difference in the sensitivity of the arterioles of normal and hypertensive subjects to the administration of epinephrine, a substance whose vasoconstrictor activity is exerted directly on the arterioles. As stated by these investigators, their study "supports the idea that in hypertension the abnormality which results in an overactivity of the vasomotor system in response to certain stimuli, such as carbon dioxide and cold, is not the result of any hypersensitivity of the arterioles to pressor stimuli but is probably situated centrally in the vasomotor centers." Heightened local arteriolar reactivity to pressor stimuli may, however, be significant in later stages of hypertension, for the hypertrophy of the muscular media which regularly occurs predisposes to exaggerated constriction in response to pressor stimuli. Hypertrophy of the muscular media, once initiated, may explain the frequent persistence of elevated blood pressure after removal of an atrophic or pyelonephritic kidney, or sympathectomy, and possibly following toxemia of pregnancy.

The findings of the present study and the evidence cited favor a vasomotor, or neurogenic, origin of essential hypertension, a concept that had many proponents before Goldblatt's studies stimulated interest in the renal mechanism. It has been regarded by some[45] that hypertension is due to organic changes in the vasomotor center, i. e. medullary ischemia, but this view is not sustained by adequate factual data. Experimentally hypertension can be produced by procedures which decrease blood flow to the medulla.[46] It has been claimed that arteriosclerotic changes are found regularly in the small vessels of the medulla in hypertension and that excitation of the vasomotor center consequent to ischemia is responsible for hypertension.[47] Other studies,[48] however, have indicated that in the majority of cases of hypertension no evidence of arteriosclerosis of the vessels in the medulla in the region of the vasomotor center is found and that the region of the vasomotor center is morphologically intact. While hypertension in the majority of cases evidently cannot be ascribed to ischemia of the vasomotor center, it is of interest that "patients who had thickened arteries in this part of the brain without an accompanying elevation of blood pressure were *not found*." [48] It appears possible that arteriosclerotic changes in the region of the medulla may contribute to the genesis of hypertension in older age groups and that the exaggerated pressor response to vasomotor stimuli so frequently observed in elderly arteriosclerotic persons [49] may be on this basis.

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Another mechanism influencing the vasomotor center has been considered in its possible relation to hypertension. Sustained elevation of the blood pressure can be produced experimentally by section of the moderator nerves from the carotid sinus and aorta.[50] However, there are no significant pathologic or physiologic changes in the carotid sinus in hypertension [51] and there is no evidence that carotid sinus reflexes acting on the vasomotor center play a causative role in hypertension.

The activity of the vasomotor center is influenced not only by such factors as blood flow to the medulla, oxygen and carbon dioxide tension, and carotid sinus reflexes, but also to a great degree by the cerebral cortex. Increasing attention is being paid to the psychosomatic factor in diseases peculiar to civilized man. Environmental influences, as well as heredity, play an undeniably important role in the genesis of essential hypertension. It has been abundantly demonstrated that hypertension is conspicuously rare in primitive races and in sedentary groups removed from urban civilization. Thus, hypertension is rare in African Negroes,[52] but its incidence is two and one-half times greater than in the white race among Negroes in metropolitan areas of the United States.[53] A distinct personality in hypertension was described some time ago by Moschcowitz [54] and more recently has been emphasized by numerous authors.[55] Essential hypertension is regarded as one type of manifestation of a psychoneurotic condition based on chronically excessive, inhibited, hostile (aggressive and competitive) impulses.[55] The sustained vasomotor stimulation resulting from such psychologic tension may ultimately lead to established hypertension. It is of interest that in schizophrenia, in which condition conflicts and frustration do not exist, owing to complete withdrawal from reality, the blood pressure is uniformly low.[56]

SUMMARY

Blood pressure responses were studied in 35 cases of essential hypertension. Comparison was made in 30 cases between the pressor effects of breath holding and immersion of the hand in cold water, and the depressor response to sodium amytal, hyperventilation, pressure above the carotid sinus and combined hyperventilation and carotid sinus pressure. The maximum blood pressure levels attained with the breath holding and with the cold pressor tests were similar (breath holding 208/133, cold pressor 211/130). The depressor effect of hyperventilation or carotid pressure alone was not as great as that following sodium amytal, but when these two procedures were combined the lowest blood pressure level attained (157/94) corresponded quite closely to that resulting from sodium amytal (151/97). In 18 cases, including 13 of the aforementioned 30 cases, the pressor effect of inhalation of aromatic spirit of ammonia was compared with breath holding. The average maximal blood pressure attained with ammonia was 213/128, with breath holding 202/126. The ammonia test is particularly useful in subjects who cannot cooperate well in maintaining apnea sufficiently long to record blood pressure changes.

The variability of the blood pressure in hypertension makes single casual readings misleading. It is therefore preferable to record the blood pressure in terms of its maximum and minimum range. Employment of the breath holding or ammonia inhalation pressor test and the hyperventilation plus carotid pressure depressor test, as suggested, makes it possible to determine the range of the blood pressure with little more time or effort than is required to record the blood pressure routinely. In the 35 cases studied the blood pressure range determined with these procedures was 208/130-153/91.

Application of pressor and depressor tests as described makes it possible to differentiate between the humoral and neurogenic components in hypertension. Variations in carbon dioxide content of the blood induced by breath holding and hyperventilation, as well as carotid sinus pressure and various other pressor and depressor agents, alter the activity of the vasomotor center. The basal blood pressure level attained with depressor tests indicates the blood pressure relatively free of vasomotor influence. This basal level of blood pressure is maintained by humoral mechanisms, e. g. renal pressor (and possibly depressor) agents. The blood pressure influencing agents of the kidney (pressor and depressor) may exercise an important physiologic function in maintaining the basal "vital" level of the blood pressure. Superimposed on this a variable control is exercised by the vasomotor center in response to requirements determined by physiologic and environmental changes. The maximal effect of the neurogenic or vasomotor component is indicated by the blood pressure level attained with pressor tests.

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There is no evidence to indicate that the renal pressor mechanism plays a part in the genesis of essential hypertension. The normal level of basal blood pressure observed in the earlier stages of hypertension suggests that in the initial stages of essential hypertension at least the humoral factor does not play an important role and that the neurogenic or vasomotor component is the more important determinant in the elevation of blood pressure. Thus, in 20 of the 35 cases studied, with an average maximal tension of 203/118 the basal blood pressure on depressor testing with inhibition of vasomotor control averaged 122/75.

With the development of organic lesions in the renal arterioles in the later stages of essential hypertension, and concomitant decreased renal blood flow, it is likely that the renal pressor mechanism ultimately comes to play a role in hypertension. That a humoral component does play a role in the later stages of hypertension and particularly in the malignant phase of essential hypertension is suggested by the failure of depressor agents acting on the vasomotor center, or sympathectomy, to decrease the blood pressure significantly. Hypertrophy of the muscular media which regularly occurs in hypertension may be a further factor in accentuating elevation of the blood pressure.

Heightened activity of the vasomotor center in essential hypertension cannot regularly be ascribed to organic changes such as arteriosclerosis of the medullary vessels with ischemia of the vasomotor system. In older age groups, however, this factor appears to be more significant. There is no evidence that abnormal activity of carotid sinus reflexes acting on the vasomotor center is of etiologic significance in hypertension. The activity of the vasomotor center is influenced greatly by the cerebral cortex, and psychosomatic factors appear to play an important role in the genesis of "essential" arterial hypertension.

CONCLUSIONS

The lability of the blood pressure in essential hypertension makes it desirable to record the maximum and minimum range rather than individual readings. This may be accomplished in simple fashion on routine examination by employing breath holding or brief inhalation of spirit of ammonia to attain the maximum pressor level, and by hyperventilation combined with carotid sinus pressure to obtain the basal depressor level. Application of these procedures makes it possible to differentiate humoral and neurogenic (vasomotor) components in hypertension. The basal blood pressure, which is largely determined by the humoral renal pressor mechanism, is normal in the earlier stages of hypertension, indicating that the humoral mechanism does not initiate the elevation of blood pressure in essential hypertension. In later stages, as the result of renal arteriolosclerosis and ischemia, the renal pressor mechanism becomes of greater importance. Hypertrophy of the arteriolar muscular media with an exaggerated response to stimuli may be a further factor in accentuating the elevated blood pressure. The heightened activity of the vasomotor center, which is responsible for the elevation of blood pressure in the earlier stages of essential hypertension, is probably to be attributed in large measure to psychosomatic influences. In older persons degenerative vascular changes in the medulla may be a contributing factor in heightened vasomotor pressor activity and hypertension.

THE TREATMENT OF INFLUENZAL MENINGITIS

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Meningitis due to Hemophilus influenzae is a not uncommon disease of infancy and early childhood. Both sulfonamides and specific rabbit antiserum have been used widely and with considerable success in the treatment of this infection for about five years. It seems appropriate at this time to sum up results obtained with the present treatment in order to facilitate the evaluation of new antibiotic substances when those effective against H. influenzae become generally available for clinical trial.

In 1922 Rivers,[1] in a review of the literature on influenzal meningitis, pointed out that the mortality rate in 200 reported cases was 92 per cent, or, in reality, even higher, since many cases are overlooked or not reported. He furthermore called attention to the fact that 12 of 17 patients who recovered were 2 years of age or older. Wilkes-Weiss and Huntington [2] in 1936 reviewed 500 cases and found a mortality of 97.6 per cent under the age of 2 and 79.5 per cent over the age of 2.

Immune goat serum,[3] bactericidal guinea pig serum [4] and Fothergill's immune horse serum were used in treatment between 1915 and 1939 with only slight effect on the mortality rates. Fothergill [5] in 1937 reported 201 cases treated with horse serum, the death rate being 84.6 per cent; these figures included Silverthorne's series of 36 patients with 11 recoveries and Schwentker's 17 cases with 5 recoveries.

At about the same time, reports began to appear in the literature of isolated cases treated with sulfonamides. Aléman [6] made an exhaustive survey of the literature up to 1940 and was able to collect from the literature and her own clinic in New Orleans reports of 82 cases treated with sulfanilamide, in which there were 10 recoveries. Six of the recovered patients were above 2 years of age.

Both Pittman [7] and Alexander [8] attempted to evaluate by means of mouse protection tests the relative efficacy of sulfanilamide, sulfapyridine and sulfadiazine in combating H. influenzae infection. Both found sulfapyridine superior to sulfanilamide and sulfadiazine most efficacious of all. It is not surprising, then, that recent journals contain reports of recoveries from influenzal meningitis following administration of sulfadiazine or some other sulfonamide alone. Sako, Stewart and Fleet [9] recently reported 23 cases; 13 patients received sulfadiazine only; 2 infants under 6 months of age died, while 11 patients recovered, 1 of them a 4 months

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old infant. Four of their patients received both sulfadiazine and horse serum: the 2 infants under the age of 2 months died, whereas the 2 older ones survived.

It seems clear then that the disease tends to be less severe in older children than in young infants, and that any suitable therapeutic agent brings about more recoveries among these older patients.

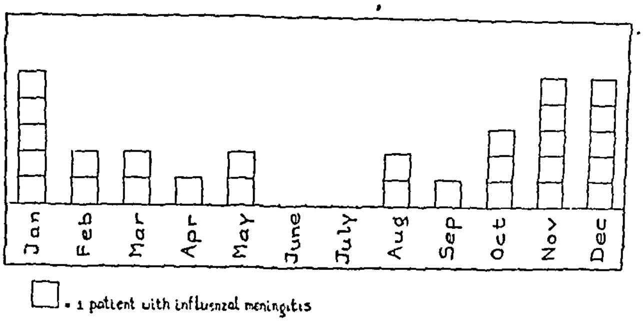

Chart 1.—Seasonal distribution of 28 patients with influenzal meningitis.

Working along lines suggested by Pittman's [10] earlier investigation, Alexander [11] in 1939 successfully prepared a potent rabbit serum against Hemophilus *influenzae* type B. She [12] herself reported the results of treating 50 patients treated with rabbit serum and sulfonamides, the mortality being 17 per cent in patients over the age of 7 months and 75 per cent in the younger age group.

The present series includes all of the proved cases of influenzal meningitis admitted to Sydenham Hospital since January 1941, at which time the Baltimore City Health Department and the Maryland State Department of Health made specific rabbit serum available to all patients regardless of their financial status.

SEASONAL INCIDENCE

The seasonal incidence of our cases (chart 1) corresponds to that originally pointed out by Rivers [1] in 1922, the greatest number occurring in November, December and January rather than in the late winter and early spring months, when other respiratory diseases are most prevalent.

AGE

The age distribution of these 28 patients is shown in chart 2 and corresponds to that pointed out by Fothergill and Wright [13] for influenzal meningitis in 1933 and by Waring and Smith [14] for pneumococcic meningitis in 1944. In this connection Fothergill and Wright studied the bactericidal power of whole defibrinated blood in various age groups and found that "with rare exceptions the blood of children between the ages of 2 months and 3 years has practically no bactericidal power against H. influenzae."

CLINICAL PICTURE AND BACTERIOLOGIC DATA

The clinical picture which the patients presented on admission varied considerably, as shown in the accompanying table. In all of these patients the diagnosis was established by finding H. influenzae in one or more spinal fluid cultures. Some were alert but jittery; others appeared severely ill. None showed a rash, but in 20 of the 28 patients H. influenzae was grown from the blood. In 8 the organism was cultured from the nasopharynx, and about half of the patients had catarrhal otitis media. In 3 a hot, swollen joint was present on admission.

The variability of the clinical course is perhaps best indicated by the two following case reports:

Case 12.—A. G. was a 1 year old boy who, following an upper respiratory infection of four days' duration, developed convulsions and diarrhea, treated unsuccessfully at home with several doses of sulfadiazine. On admission he was restless, with a stiff neck and a temperature of 101.4 F. and seemed only moderately ill. The spinal fluid was cloudy; small gram-negative cocci were seen on smear and thought to be meningococci. The spinal fluid culture was sterile on culture. Sulfadiazine was given in the usual doses over an eight day period and the patient became asymptomatic. However, on the tenth day his temperature rose to between 102 and 103 F. At that time both blood and spinal fluid cultures became positive for H. influenzae type B. Sulfadiazine and rabbit serum were administered and the patient improved promptly. In retrospect it seems that the patient must have had mild influenzal meningitis on admission held in check by the sulfadiazine which he received both at home and after admission. The sulfadiazine being discontinued, he apparently relapsed until treated with serum as well as sulfonamide.

Case 17.—O. N., a boy aged 8 months, became ill quite suddenly on the night before admission with chills, fever, vomiting and later prostration. His temperature was 102.6 F. on arrival at the hospital and he seemed moderately ill. His spinal fluid was cloudy and loaded with H. influenzae organisms. Treated with sulfadiazine and specific rabbit serum as well as transfusion, he had fever spiking to 105 F. during the first week, later to 103 F. His course was very stormy for three weeks, and he had convulsions many times. Followed since discharge by his pediatrician, he has developed in every way normally.

Most noteworthy with regard to the spinal fluid findings are the reduction in spinal fluid sugar (as determined by the five tube method) and the frequency with which organisms were found on the admission smear and identified immediately by quelling with type specific serum. All but 1 of our cases was due to H. influenzae type B. The one exception, case 6, had a strain of H. influenzae in both blood and spinal fluid which could not be typed either in our own laboratory or by Dr. Hattie Alexander.

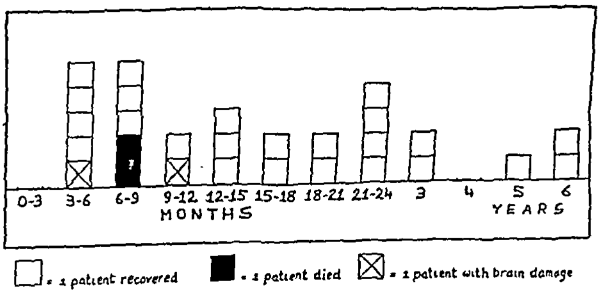

Chart 2.—Age incidence of influenzal meningitis.

THERAPY

Sulfonamides.—All of our patients received, in addition to specific rabbit antibody, one of the sulfonamide drugs in the manner and dosage previously outlined by us for the treatment of other types of meningitis.[15]

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[10] Pittman, M.: Variation and Type Specificity in Bacterial Species Hemophilus Influenzae, J. Exper. Med. **53:** 471, 1931.

[11] Alexander, Hattie E.: Type B Anti-Influenzal Rabbit Serum for Therapeutic Purposes, Proc. Soc. Exper. Biol. & Med. **40:** 313, 1939.

[12] Alexander, Hattie E.; Ellis, Catherine, and Leidy, Grace: Treatment of Type Specific H. Influenzae Infections in Infancy and Childhood, J. Pediat. **20:** 673, 1942.

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[14] Waring, A. J., Jr., and Smith, Margaret H. D.: Combined Penicillin and Sulfonamide Therapy in Treatment of Pneumococcic Meningitis, J. A. M. A. **126:** 418 (Oct. 14) 1944.

[15] Hodes, H. L.; Smith, Margaret H. D., and Ickes, H. J.: Sixty Cases of Pneumococcic Meningitis Treated with Sulfonamides, J. A. M. A. **121:** 1334 (April 24) 1943.

We aimed to maintain a blood level of 8 to 12 mg. of sulfadiazine and 3 to 6 mg. of sulfapyrazine per hundred cubic centimeters, i. e. moderate rather than high drug levels. Sulfonamide therapy was continued for about two weeks after apparent clinical cure because of the well known tendency of patients with influenzal meningitis to relapse.

Fifteen of our patients received serum and sulfadiazine alone, with one death; 8 patients received serum and sulfapyrazine alone, and all recovered. The 5 remaining patients received more than one sulfonamide drug at some time during their illness. Obviously no final conclusion can be drawn from this small number of cases with regard to the relative merits of the two drugs. Nevertheless, it seems fair to say that the two are probably about equally effective. There is at least one other report in the pediatric literature of the use of sulfapyrazine in influenzal meningitis: Vandegrift[16] used sulfapyrazine twice in conjunction with immune rabbit serum, and 1 of his patients recovered. Sulfamerazine is also reported to be satisfactory.[17]

Clinical Data on Twenty-Eight Patients with Influenzal Meningitis

				Admission Cultures		Admission Spinal Fluid			Clinical Picture				Treatment			
Case	Initials	Age	Month Admitted	Nasopharynx	Blood	Cell Count	Sugar	Smear	Temperature on Admission	Pneumonia	Otitis	Arthritis	Drug *	Rabbit Antibody, Mg.	Serum Reaction	Result
1	B. J. S.	5 mos.	November	+	+	50	0	0	104.4	0	+	0	D+ Pz	325	0	Hydrocephalus
2	E. L.	6 mos.	January	+	+	160	0	+	102.4	0	0	0	D	75	..	Recovered
3	J. A. B.	6 mos.	January	0	+	2,000	0	+	103	0	0	0	Pz	275	+	Recovered
4	R. H.	6 mos.	November	0	+	500	Low	0	101	0	+	+	Pz	225	+	Recovered
5	J. M.	6 mos.	November	+	+	3,760	0	+	104.8	0	0	0	D+ Pz	300	+	Recovered
6	J. A.	7 mos.	December	0	+	1,760	0	+	104.8	+	+	0	D	...	..	Recovered
7	B. C.	8 mos.	August	0	+	2,500	Trace	+	102.4	0	+	0	D	300	0	Recovered
8	J. D.	8 mos.	February	0	+	1,840	Trace	+	101.4	0	0	0	Th+ D	275	0	Recovered
9	H. O.	9 mos.	January	0	+	5,400	0	+	104.4	0	0	0	D+ Pz	225	+	Died
10	F. F.	9 mos.	May	0	+	5,250	Low	0	104	+	+	0	D	225	0	Died
11	N. S.	10 mos.	March	+	?	8,000	0	+	101	+	+	0	D	250	0	Cortical atrophy
12	A. G.	12 mos.	April	0	+†	600	?	0	101.4	+	0	0	D	100	0	Recovered
13	W. F.	13 mos.	December	0	+	550	+	+	102	0	+	0	D	225	+	Recovered
14	G. T.	14 mos.	May	0	0	?	?	+	102.2	0	+	0	D	200	+	Recovered
15	K. P.	14 mos.	March	+	+	1,200	Trace	+	101.6	0	0	0	D	150	0	Recovered
16	D. S.	16 mos.	January	0	0	2,000	0	+	101	0	+	0	Pz	125+ 180 cc.‡	0	Recovered
17	O. N.	18 mos.	February	0	+	5,200	0	+	102.6	0	+	0	D	225	0	Recovered
18	L. L.	19 mos.	September	0	0	2,400	0	+	101	0	0	0	Pz	225	0	Recovered
19	D. M.	21 mos.	October	0	?	7,000	0	+	102	+	+	+	D	375	+	Recovered
20	J. Z.	22 mos.	October	0	+	3,500	0	+	103.8	0	+	+	Pz	250	+	Recovered
21	M. D.	2 yrs.	October	+	+	17,000	0	0	105.4	0	+	0	Pz	200	0	Recovered
22	S. H.	2 yrs.	August	0	0	700	Low	+	101.6	+	0	0	Pz	125	+	Recovered
23	G. H.	2 yrs.	November	+	+	2,800	Trace	+	103.4	?	0	0	Pz	250	+	Recovered
24	N. J. S.	3 yrs.	December	+	0	22,000	0	+	102	0	0	0	D	150	+	Recovered
25	D. M.	3 yrs.	November	0	0	12,500	0	+	103	0	+	0	D	225	+	Recovered
26	J. H.	5 yrs.	December	0	+.	5,000	0	+	102.6	0	0	0	D+ Pz	150	0	Recovered
27	F. H.	6 yrs.	January	0	+	120	Normal	+	102	0	0	0	D	40+ 40 cc.‡	0	Recovered
28	F. A.	6 yrs.	December	0	+	20,000	?	+	101.8	0	0	0	D	150	0	Recovered

* D, sulfadiazine; Pz, sulfapyrazine; Th, sulfathiazole. † At the time of relapse. See case report.
‡ In 2 cases unstandardized serum of low titer was used.

Serum.—Twenty-seven of our 28 patients were treated with anti-H. influenzae type B rabbit serum, the 1 exception being the patient with an untypable strain of organism. In our earlier experience the initial dose of serum was 50 to 75 mg. of antibody nitrogen, but we have gradually come to feel that the initial dose should be relatively large. At present, in a severe case, 125 to 150 mg. is given soon after admission.

The subsequent dosage of rabbit antibody is determined as outlined by Alexander, assaying each day varying dilutions of the patient's own serum against a subculture of the organisms originally recovered from his own spinal fluid. Sufficient serum is administered so that the patient's own serum in a dilution of approximately 1 : 16 will produce capsular swelling of the stock culture. As the patient improves, the organisms die off and cease to produce specific soluble polysaccharide, which combines with the specific antibody. Thus the rate of disappearance of the rabbit antibody slows down and approximates the rate of destruction of any heterologous serum. Conversely it is a good prognostic sign if the patient almost maintains his antibody titer from day to day without further administration of serum.

The total dose of serum has varied in our cases from 75 mg. (the first case treated) to 325 mg., the average being 200 to 250 mg.

Twenty-five of the 27 patients treated with serum received all or most of this serum intravenously. Two patients (24 and 27) received intramuscular serum only with excellent results. This mode of administration, first reported by Boisvert and his associates,[18] should probably be used much more often, as it obviates some of the severe serum reactions observed after intravenous therapy. One patient (1) whose spinal fluid cultures remained positive received intrathecal serum as a last resort, without apparent beneficial effect.

It has been our practice to follow a suggestion originally made by Neter:[19] the patient is given a small desensitizing dose of rabbit serum at least every five days until all need for serum therapy is definitely past.

Lumbar Punctures.—In order to plan properly for the dosage of serum and the duration of sulfonamide therapy, it is essential to follow closely the changes in the spinal fluid. Although a patient with meningococcic meningitis is rarely subjected to more than one lumbar puncture, we feel that patients with influenzal meningitis should be tapped daily until the spinal fluid cultures have been sterile for several days and until the spinal fluid sugar has returned to normal.

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[16] Vandegrift, H. N.: Experience with Sulfapyrazine in Children, J. Pediat. **25**: 386, 1944.

[17] Hall, W. H., and Spink, W. W.: Sulfamerazine: Clinical Evaluation in 116 Cases, J. A. M. A. **123**: 125 (Sept. 18) 1943.

[18] Boisvert, Paul L.; Fousek, Mildred D., and Grossman, Marya F.: Intramuscular Administration of Anti-Hemophilus Influenzae, Type B, Rabbit Serum: Report of Its Use in Three Cases of Influenzal Meningitis, J. A. M. A. **124**: 220 (Jan. 22) 1944.

[19] Neter, E.: Observations on Hemophilus Influenzae (Type B) Meningitis of Children, J. Pediat. **20**: 699, 1942.

Mastoidectomy.—Many of our patients showed mild otitis media on admission. In a few instances myringotomy was necessary, but in none of our cases did mastoidectomy appear to be indicated. We feel that the indications of mastoidectomy should be the same whether meningitis is present or not, and that a patient who is suffering from a severe disease such as meningitis should not be subjected to a major operation unless such a measure seems unavoidable.

General Measures.—Intravenous fluids were employed as indicated, and transfusions were given whenever the patient's hemoglobin on admission was below 10 Gm.

COMPLICATIONS OF SERUM THERAPY

The use of the anti-H. influenzae rabbit serum has unfortunately certain unpleasant side effects of minor importance. Perhaps because this serum is less completely purified than certain others in common use, serum reactions are relatively frequent. Our records show that 12 of our 27 patients treated with serum had side reactions. These reactions seem to fall into three types:

(*a*) Immediate anaphylactoid reactions, of which we saw 2 examples. In one 6 months old infant intravenous administration of 125 mg. of rabbit antibody was followed immediately by a severe reaction consisting of fever, cyanosis and asthmatic breathing. The symptoms abated rapidly after administration of epinephrine. The other patient was a 9 months old infant who, to judge by the history, must have had meningitis for a month before admission. After receiving a few cubic centimeters of rabbit serum intravenously he became stiff, cyanotic and apneic. He was finally revived with intracardiac epinephrine. Immediate and severe reactions to serum when administered to very ill patients have been seen by us and described by others[20] as occurring in conjunction with the administration of serum to patients with pneumonia. Their cause is unknown.

(*b*) An interesting type of delayed reaction occurred in 4 of our patients. Routine tests for sensitivity to rabbit serum are given our patients by dropping into one eye a small amount of the material diluted 1:10. Several showed on the following day edema and slight reddening of the soft tissues about the eye which persisted for another two to three days. The conjunctiva was slightly inflamed at the same time.

(*c*) The commonest type of serum reaction was serum sickness, which appeared between the ninth and twenty-third hospital days and was characterized clinically by an urticarial rash in all cases and in most by fever and painful joints in addition. One patient showed fever at the end of the second week in the hospital which could not be accounted for on the basis of the clinical findings and which may have represented abortive serum sickness.

We wish to stress the frequency with which we encountered serum reactions, not because they militate against the use of the serum but because they enforce care in its administration and frequently provide the explanation for fever, malaise and rash occurring late in the course of the disease when the patient was thought to have recovered. Also these reactions in many cases prolong convalescence.

RESULTS

Twenty-four of the 28 patients apparently recovered completely, without sequelae. Seven of these were aged 8 months or less. The following 5 were thought at the time of discharge to show evidence of brain damage:

Patient 2 went home with questionable hydrocephalus but on subsequent follow-up was found to be entirely well.

Patient 8 had some spasticity of one arm.

Patient 11 appeared a complete idiot both on discharge and when seen a year later.

Patient 1 was suffering from severe hydrocephalus.

Patient 18 had mild spastic hemiplegia.

Two of the 28 patients died, a mortality of 7 per cent. One of these, a 9 months old infant, has already been mentioned as having had an anaphylactic reaction on administration of serum. His illness had been of long duration before he came to us and his outlook appeared hopeless from the first. The other patient who died was likewise 9 months of age. There was a delay of two days in her case in starting specific therapy, since the diagnosis was made only on the basis of a positive spinal fluid culture. Moreover, the serum was not given at the beginning in our usual high dosage but rather in smaller divided doses over a period of ten days. At any rate, whatever the reasons, the patient succumbed on the twenty-ninth hospital day.

Instead of speaking of the percentage of deaths following influenzal meningitis, it is probably actually more accurate to group on the one hand those patients who were discharged in satisfactory condition and, on the other, those who died or who were severely crippled. On this basis, we can say that 24 (85 per cent) of our patients did well and that 4 (15 per cent) did not respond satisfactorily: either they died or showed evidence of severe and presumably permanent damage to the central nervous system.

COMMENT

From the bacteriologic point of view patient 6 is of some interest in that the organism recovered from his spinal fluid did not fall into any of the established types of H. influenzae; nor was it found to give with the standard types of antipneumococcus rabbit serum any of the cross reactions which have been described from time to time in connection with strains of H. influenzae.[21] Although most cases of H. influenzae meningitis are due to type B, other types have occasionally been recovered from the spinal fluid.[22] In general, meningitis due to type B is more severe than that due to other types.[23]

The relatively high recovery rate among our very young patients is, we think, dependent on at least two factors. In the first place all of the patients admitted to this hospital are carried immediately into an admission room, where the necessary diagnostic and therapeutic procedures are carried out as expeditiously as possible. Unnecessary manipulation and loss of time in instituting treatment have a deleterious effect on any severely ill person. In the second place the patients seem to do better when given larger doses of serum early in the illness. In this way the patient is certain to have in his blood at all times an excess of antibody. Moreover, it is theoretically possible in this way to increase the amount of antibody supplied to the spinal fluid without the risk of producing block due to the serum itself, a risk which is not negligible when animal serum as such is introduced into the subarachnoid space. That the antibody titer of the spinal fluid is proportional to that of the blood in a ratio of approximately 1:300 has been shown by Freund[24] following both active and passive immunization of rabbits against typhoid. Ramon and Descombey[25] demonstrated a similar relationship with regard to antitoxin in serum and spinal fluid, and Morgan and her associates[26] described the same ratio following active immunization with the viruses of both eastern and western equine encephalomyelitis. That antibody is present in the spinal fluid following intravenous administration of anti-influenzal rabbit serum has been shown by Alexander,[8] although the exact ratio has not to our knowledge been determined.

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[23] Alexander, Hattie E: Personal communication to the authors.

Our experience sheds no light on the much discussed question of using intrathecal serum in the treatment of patients who do not respond to the use of intravenous or intramuscular serum combined with sulfonamides. Most of our patients are seen and treated early in the course of the disease, and, owing either to chance or to the use of large doses of serum, seem to recover without intrathecal serum.

In summary, then, we find on the basis of 28 consecutive cases that the intensive use of sulfonamide and specific serum therapy in influenzal meningitis has reduced the mortality until it is comparable to that of meningococcic meningitis. The high cost of the serum, the tedious and repeated determinations of the patient's serum titer and the high incidence of serum reactions lead us to hope that new antibiotic substances will soon "streamline" the treatment.

SUMMARY

1. Twenty-eight consecutive cases of influenzal meningitis have been treated at this hospital since 1941.
2. The seasonal incidence seems to be highest in late autumn and early winter.
3. The age incidence of influenzal meningitis in infancy follows a curve roughly similar to that of pneumococcic meningitis, i. e. the maximum number of cases occur between the ages of 3 and 9 months.
4. Early diagnosis and intensive early therapy, using both sulfonamides and type specific rabbit antibody, have reduced the mortality to a figure comparable to that of meningococcic meningitis. Failure to use serum early in the course of treatment entails unnecessary risk to the patient's life.
5. The mortality has been most strikingly lowered in the younger infants, among whom the mortality is highest.
6. Sulfapyrazine and its sodium salt have been found to be effective in the treatment of this disease.
7. The incidence of serum reactions is high but does not militate against the use of serum.

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[25] Ramon, G, and Descombey, P.: Sur le passage des antitoxines à travers la barriere meningee, Compt rend. Soc. de biol **108:** 358, 1931

[26] Morgan, Isabel; Schlesinger, R. W., and Olitsky, P. K.: Induced Resistance of Central Nervous System to Experimental Infection with Equine Encephalomyelitis Virus, J. Exper. Med. **76:** 357, 1942.

CENTRAL NERVOUS SYSTEM COMPLICATIONS ASSOCIATED WITH KERNICTERUS

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Kernicterus as a pathologic finding has been observed almost exclusively in children that have exhibited the clinical picture of erythroblastosis fetalis. It is therefore a reasonable conclusion that this type of cerebral abnormality in the vast majority of cases is the result of maternal isoimmunization during pregnancy primarily by the Rh factor.

While the neonatal mortality rate in children with kernicterus is very high, a certain number do survive for a variable period. The recognition of these cases in the past has depended on the history of severe neonatal jaundice and the subsequent development of symptoms of central nervous system disease. Most of the reported cases of this type presented a clinical picture in which evidence of basal ganglion injury predominated, such as choreoathetosis and extrapyramidal spasticity.[1] The widespread nature of neuronal damage in kernicterus[2] suggests the possibility that certain of the surviving patients might present other types of neurologic defects. Kernicterus has been demonstrated in infants, moreover, in whom neonatal jaundice or other signs of erythroblastosis fetalis were relatively inconspicuous.[3] Since neither the clinical picture nor the neonatal history need be absolutely characteristic, it seems clear that a further evaluation of the syndrome is indicated.

Mental deficiency is the most common manifestation of extensive cerebral abnormality of prenatal origin. It would appear likely that among large groups of congenitally severely retarded children one might expect to find a small number in whom the cerebral defect was the result of maternal Rh isoimmunization.

That this might be the case was suggested by a preliminary study[4] in which it was found that the incidence of mother-child Rh incompatibility was significantly greater among a group of undifferentiated defectives as compared to a control group consisting primarily of mongolians, spastic diplegias and postinfectious and post-traumatic types.

Our purpose in this paper is to present the results of a much wider study of this kind and to describe briefly some of the clinical conditions encountered that might represent this type of cerebral damage.

MATERIAL AND METHODS

There were in the institution at the time of this study approximately 350 children with intelligence quotients of less than 30. Of the mothers of these children it was possible to obtain at least one blood sample on 277. Of the remainder, a small number were deceased, many failed to respond to one or more written requests to visit

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Published under the auspices of the Section on Nervous and Mental Diseases

Supported by a grant from the Fluid Research Fund, Yale University School of Medicine

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[3] Unpublished personal observations Zimmerman and Yannet[2]

[4] Yannet, Herman, and Lieberman, Rose: The Rh Factor in the Etiology of Mental Deficiency, Am J. Ment. Deficiency **49:** 133, 1944.

the laboratory, and some could not be located. Studies of the children's blood were carried out only on those whose mothers proved to be Rh negative.

Of the 277 children it was possible to place 158 into well recognized diagnostic classifications, including 45 mongolians, 33 with infantile spastic diplegia and 36 with acquired defects due to cerebral infections or trauma. Also included were cases of phenylpyruvic amentia, craniofacial anomalies, tuberous sclerosis, cerebral lipoidoses and other conditions. These were treated as the control group. The remaining 119 children diagnosed as undifferentiated made up the group in whom the incidence of mother-child Rh incompatibility was being investigated. Before being diagnosed as undifferentiated, every clinical and laboratory facility was employed to rule out known etiologic categories. However, it is appreciated that included in the group are an undetermined number of cases based on recessive genetic factors which could not be diagnosed because of small sibships or lack of adequate family histories. Also included are probably cases of birth trauma without characteristic history or examination, as well as fetal injuries due to maternal illnesses of which no record was available. Prenatal, neonatal or infantile encephalitic processes may also have been inadvertently included. It is therefore clear that if the Rh factor was of etiologic importance in explaining some of the cases in the undifferentiated group, the expected proportion would be relatively small, although significantly greater than one would expect to find in a control group.

Results of Blood Examination

	Total Number	Mother Rh —	Mother Rh — Child Rh +
Control	158	22 (14.0%)	12 (7.6%)
Undifferentiated	119	26 (22.0%)	19 (16.0%)

The anti-Rh serum used was obtained through the courtesy of Dr. Diamond from the Blood Grouping Laboratory in Boston. The method used for typing was that described by Levine.[5] Maternal Rh antibodies were also determined whenever possible, including the so-called "blocking" antibodies, as described by Wiener.[6]

RESULTS

The results are summarized in the table. Approximately 14 per cent of the mothers in the control group were Rh negative. This agrees with the ratio to be expected on the basis of random selection. The random distribution of the Rh factor is such that an Rh negative woman has a 60 per cent chance of giving birth to an Rh positive child.[7] On this basis the 22 Rh negative mothers in the control group might be expected to have 13 Rh positive children, giving 8.2 per cent as the theoretical or random ratio of mother-child Rh incompatibility. This agrees with the actual finding, as the table indicates, of 12 cases (7.6 per cent) of Rh incompatibility in the control group. In the undifferentiated group, on the other hand, 26, or 22 per cent of the mothers, were found to be Rh negative. Moreover, whereas one might have expected to find 15 or 16 Rh positive children in this group, actually 19 were found, giving a ratio for mother-child Rh incompatibility of 16 per cent in the undifferentiated group as compared to 7.6 per cent in the control group. The difference between these ratios is statistically significant.

On the basis of the findings in the control group as well as on theoretical considerations, only 9 cases of mother-child Rh incompatibility should have been found in the 119 cases in the undifferentiated group; actually 19 were encountered. It would therefore seem reasonable to expect that of the 19 cases approximately 10 may represent examples of cerebral damage due to maternal Rh isoimmunization.

The identification of those cases which definitely represent examples of fetal injury due to maternal Rh isoimmunization presents a problem which cannot be entirely solved as yet. A clinical appraisal of the 19 cases in which isoimmunization was possible on the basis of blood incompatibilty yields three fairly distinct groups. These are now summarized:

Group 1.—This group includes 3 cases in which there is definite evidence of maternal isoimmunization. In cases 1 and 2 high titers of Rh antibodies were found in the mothers five and three years after delivery respectively, while in case 3 the mother died in 1942 following a transfusion of Rh positive blood administered soon after the delivery of a child who died with typical erythroblastosis fetalis. A brief clinical description of these cases follows:

Case 1.—W. V., a boy, was born Dec. 9, 1939, the result of the second pregnancy, which was entirely uneventful. The preceding pregnancy in 1938 terminated at 7 months with the delivery of a dead fetus. A report from the hospital gave the cause of death as "intrauterine asphyxia" with little qualifying details. The mother at this time was given a transfusion because of postpartum bleeding, the husband, who was Rh positive, acting as donor. No reaction to this transfusion was recorded. The patient was delivered without difficulty after a four hour labor. On the third day he developed jaundice and fever, and blood studies were reported by the hospital as being characteristic of erythroblastosis fetalis. Peculiar spasms, first noted at the end of the first month, became gradually more frequent, so that by the third month there was generalized spasmodic increase in muscle tone. Abnormal, athetoid-like movements of the extremities appeared one month later and persisted. Periods of opisthotonos also became evident. There was no sign of any significant mental development. He was admitted to the Southbury Training School on Dec. 28, 1944 at 5 years of age. Examination revealed a decidedly emaciated child whose mental age was estimated at 5 months. The head measured 47.5 cm. in circumference and there was a moderate degree of athetosis of the extremities, most pronounced in the left arm, and some facial grimacing. Although muscle tone was usually increased, there were short periods of relaxation during which hypermobility was quite striking at the hips, knees, ankles and wrists. Deep tendon reflexes could be obtained only with difficulty. There was no ankle clonus, but the Babinski responses were bilaterally extensor. Tonic neck reflexes could frequently be elicited. Laboratory findings were consistently within normal limits. The remainder of the examination was not contributory. The child was admitted to our hospital on four occasions in the following five months with upper respiratory infections, during which no peculiarity was noted in the temperature course. There has been no significant change in the clinical picture since admission.

Case 2.—M. J. Mc., a boy, was born Sept. 19, 1941, the product of the second pregnancy. An older sibling born in 1940 is Rh positive, had a normal neonatal period and was found to be entirely normal in 1944. There was a third pregnancy in 1943, resulting in an Rh positive infant who survived a stormy neonatal period during which a characteristic picture of erythroblastosis fetalis was present, requiring frequent transfusions. The latter child was found to be entirely normal at 14 months of age. The patient was born after an uneventful pregnancy and uncomplicated, short labor. Jaundice appeared on the second day and became intense during the following days. Head retraction and generalized short muscle spasms appeared on the third day and persisted to a more or less noticeable degree, especially when disturbed. No transfusions were required and the child was discharged on the tenth day, with the jaundice practically gone. Abnormal movements of the extremities were first noted at the fourth month. No significant mental development was evident. Feeding was always difficult and associated with much coughing and gagging.

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[5] Levine, Philip: The Pathogenesis of Erythroblastosis Fetalis, J. Pediat. 23: 656 (Dec.) 1943.

[6] Wiener, A. S.: A New Test (Blocking Test) for Rh Sensitization, Proc. Soc. Exper. Biol. & Med. 56: 173 (June) 1944.

[7] Morgan, W. T. J.: Occurrence and Nature of Human Blood Group Substances, Brit. M. Bull. 2: 165, 1944.

The child was seen frequently by physicians because of hyperpyrexia, occasionally associated with signs of respiratory infection but frequently without evident cause. He was admitted to the Southbury Training School on Oct. 19, 1944 at the age of 3 years. Examination at this time indicated that the boy was extremely malnourished with a mental age estimated at 3 months. The head was symmetrical and measured 50 cm. in circumference. The only significant findings were in the central nervous system. There was athetosis of the extremities, more pronounced on the left side. The head was held rotated to the right, and there was constant facial grimacing. The muscle tone was increased irregularly in all extremities most of the time. This child, as in case 1, also exhibited, during periods of relaxation, accentuated hypermobility at the knee, ankle and wrist joints. The deep tendon reflexes could not be obtained, and the Babinski responses were equivocal. Studies of the blood, urine and spinal fluid were within normal limits. The course was characterized by episodes of unexplained fever frequently over 104 F. Blood cultures on three occasions during these periods were sterile. On Feb. 2, 1945, about four months after admission, the child died exhibiting hyperpyrexia without significant clinical signs of infection. At autopsy a small quantity of thick pus was found in the right mastoid cells, although otoscopy shortly before death showed no significant abnormalities in the canals or tympanic membranes. The lungs showed a focal lipoid pneumonia. The brain and spinal cord was examined by Dr. S. H. Durlacher of the pathology department of the Yale University School of Medicine. The findings were essentially similar to those previously reported by Zimmerman and Yannet[1] both in distribution and in the nature of the changes, so that a detailed description is not included. Briefly, widespread but patchy demyelinization and loss of ganglion cells characterized the findings. This was especially prominent in the basal ganglions.

Case 3.—T. W., a boy, was the result of the third of five pregnancies. The first two children, born in 1934 and 1935 respectively, had normal neonatal histories and showed subsequent normal and uneventful development. The fourth pregnancy, in 1940, terminated in the delivery of a stillborn child. The fifth pregnancy, in 1942, also resulted in a stillborn child. During this postpartum period, because of a hemorrhage, the mother was transfused, a professional donor being employed. A severe reaction ensued, resulting in the death of the mother. Subsequent study showed that the mother's blood was Rh negative and the donor's Rh positive.

The patient was delivered without difficulty on Oct. 2, 1938 and appeared normal at birth. Within twelve hours he developed a rapidly increasing jaundice and severe anemia. A diagnosis of erythroblastosis fetalis was made, and the child was transfused repeatedly. He made a gradual recovery and seemed in good condition when discharged three weeks later. It soon became apparent that his development was significantly retarded. He failed to sit alone before the second year and began to walk during the third year. He made no effort to talk. There was no history of abnormal motor activity or convulsions. He was admitted to the Southbury Training School on March 16, 1943 at 4½ years of age. At this time he was well nourished and had a mental age of 2 years. He made no effort to talk but could understand and carry out simple commands. The head was symmetrical and measured 50 cm in circumference. The significant findings were confined to the examination of the central nervous system. The gait was grossly ataxic, with internal rotation of the feet. There was a well established lumbar lordosis. Definite genu recurvatum was present bilaterally, more pronounced on the right. There was an alternating strabismus with normal fundi. A generalized hypotonia could be demonstrated, which was symmetrical in distribution. There was well defined ataxia of both upper extremities and the trunk. No abnormality in exteroceptive sensation was present. The deep tendon reflexes were easily obtained and equal. The Babinski responses were flexor, and the abdominal reflexes were present. The course in the institution was characterized by a slow but definite improvement in motor activity. The gait improved considerably, so that locomotion became relatively adequate, although ataxic. His speech has shown favorable progress, although still greatly retarded. The hypotonia and associated muscle weakness is still evident but less definite. His mental age is estimated, at this time (June 1945) at 3 years, giving the boy an intelligence quotient of about 45.

Group 2.—The next 3 cases are grouped together because, although the evidence for maternal Rh isoimmunization was presumptive, it was not as definite as in the preceding group. In cases 4 and 5 no Rh antibodies could be demonstrated in the mothers, while in case 6 serum could not be obtained for study. Also patients 4 and 5 were born at home, and because they were relatively older (19 and 20 years respectively) the neonatal histories, as obtained from the mothers, were not considered accurate or adequately detailed. However, as the following brief summaries will indicate, it was likely that all of these children had erythroblastosis fetalis.

Case 4.—N. J., a boy, was one of twins, born without difficulty at the end of the fifth pregnancy, which was uneventful. The other twin, a girl, was said to have been entirely normal in development. Unfortunately she could not be reached for blood examination. The preceding 4 children, born in 1914, 1917, 1923 and 1925 respectively, were said to be normal but were also unavailable for study. A sixth pregnancy, in 1934, ended in a miscarriage at 5 months, and the seventh pregnancy resulted in a full term stillborn fetus.

The patient was born Dec. 19, 1926 at home, attended by a midwife. He seemed normal at birth. On the third day he was noticed to be jaundiced and very pale. The following day he had a generalized convulsion, followed by numerous cyanotic spells. He did poorly during the following two months, gaining little weight. At about 4 months of age, abnormal movements of the extremities became apparent and persisted. His development was greatly delayed. He could not support his head until 2 years of age; he sat alone at 3 years and walked at 9 years. Speech was never intelligible. He was admitted to the Southbury Training School on Nov. 2, 1944 at 18 years of age. Examination at this time revealed that he was moderately well nourished and that his mental age was estimated at about 3 years. His head was symmetrical and measured 50 cm. in circumference. There was generalized athetosis, with facial grimacing. The head was held rotated to the right. The gait was suggestively ataxic, and there was evidence of incoordination in the use of his arms. There was sustained increase in muscle tone with no definite periods of relaxation, as was exhibited in cases 1 and 2. The deep reflexes were equal and of normal intensity. The Babinski responses were flexor; the abdominal reflexes were obtained with difficulty, and ankle clonus was absent. The remainder of the examination was not significant. Laboratory findings were not abnormal. The boy's course has been relatively uneventful since admission, and his condition at present is unchanged.

Case 5.—T. S., a girl aged 19 years, was the result of the first pregnancy, which was uneventful. A second pregnancy, in 1938, resulted in a normal child who was found to be Rh negative. The patient was born at home, attended by a physician after an uncomplicated delivery. During the first week there were many attacks of cyanosis. Jaundice appeared early and became intense during the first week, lasting for almost four weeks. The stools were of normal color. Around the fourth month, abnormal movements appeared and persisted. At 7 months of age she had generalized convulsions, which were repeated infrequently during the next year but have not recurred since. Development was greatly retarded. She began to walk alone at 7 years. Speech is still almost unintelligible. She was admitted to the Southbury Training School on Jan. 27, 1944. Examination at this time showed that she was well nourished, and her mental age was estimated at about 5 years. The head was symmetrical, measured 54 cm. in circumference and was held turned to the right. Generalized athetosis was prominent and the gait suggestively ataxic. There was spasmodic increase in muscle tone, but, during periods of relaxation, definite hypotonia was present with hypermobility at the wrists, knees and ankles. Deep reflexes were difficult to elicit, the Babinski responses were equivocal, abdominal reflexes were present and ankle clonus was absent. The remainder of the examination was not remarkable. Laboratory studies were noncontributory. The girl made a good adjustment to her institutional experience, and her present status is essentially unchanged.

Case 6.—C. S., a girl aged 7 years, was the result of a full term, uneventful second pregnancy. The first child was stillborn after a long labor said to have lasted for five days. The cause of death was given as "birth trauma." The patient was delivered without difficulty in a hospital and seemed normal at birth. On the third day jaundice was noted. This became intense rapidly and was said to have persisted for over four weeks. On the third day she developed spasmodic episodes with head retraction. These occurred frequently but gradually subsided by the end of the third week. Around the fourth month increased muscle tone became evident, increasing in severity and persisting. The girl never walked or talked and has been confined to bed. At 6 years of age she began to have generalized convulsions, which recurred at infrequent intervals. She was admitted to the Southbury Training School on June 6, 1943. At this time she was poorly nourished, and her mental age was less than 6 months. The head was symmetrical and measured 49 cm. in circumference. There was no evidence of abnormal movements. There was a generalized but irregular increase in muscle tone that was constant and could be overcome only with considerable force. Fingers were held hyperextended at the metacarpophalangeal joints and flexed at the terminal phalangeal joints. The deep reflexes were hyperactive but equal; there were bilateral ankle clonus and bilateral extensor Babinski responses. The abdominal reflex was absent on the right but present on the left. The fundi were negative. There was gross incoordination of the extraocular movements, and light perception was present. Except for the emaciation and underdevelopment, the remainder of the examination and the laboratory studies were not remarkable. The child remained at the institution for about three weeks and was taken home against advice. There had been no significant change.

Group 3.—The remaining 13 cases are grouped together because of the absence of any significant findings in the histories that would in any way suggest the possibility of isoimmunization in the mothers. Unfortunately, the relatively advanced ages of the patients (average age 24 years) and the fact that the majority were born at home made the neonatal histories, as obtained from the mothers, difficult to evaluate. In about half the cases it was possible to obtain specimens of serum from the mothers for study, but no evidence of Rh antibodies could be demonstrated. Unfortunately the more sensitive slide agglutination method for demonstrating Rh antibodies recently described by Diamond and Abelson[8] was not available. However, on the basis of the incidence of mother-child Rh incompatibility found in our control group it is not unlikely that a few of these do represent instances of cerebral damage on the basis of Rh isoimmunization. However, the clinical picture was in no way characteristic. Eleven were males, and five were first born. There were 4 children who were premature. In 2 of these there was a family history of prior stillbirths. In 1 case a preceding pregnancy had terminated in the delivery of an infant that died at 4 days of age with jaundice, but the data were too meager to warrant a diagnosis. The physical findings were characterized by the absence of signs of specific central nervous system abnormalities except for the severe mental defect. In brief, although there is reasonably good evidence that some of these cases do fall into the group of brain injuries due to Rh isoimmunization, a positive or even a presumptive diagnosis in any individual case was impossible at this late date. The consderation of this possibility seems indicated in every case of mother-child Rh incompatibility, so that evidence of isoimmunization in the mother and the less dramatic signs of erythroblastosis fetalis in the child can be sought for relatively soon after birth. Only in this way will it be possible to be sure that some of the cases that are included in group 3 actually represent atypical examples of kernicterus.

COMMENT

Most of the cases in groups 1 and 2 in which a definite or presumptive diagnosis of maternal Rh isoimmunization could be made show essentially the same clinical picture previously described of surviving patients with kernicterus.[9] This included a stormy neonatal period (now recognized clinically as erythroblastosis fetalis), the early appearance of increased muscle tone followed soon after by abnormal movements of the extremities and relatively severe mental defect. The clinical picture in case 3, however, was strikingly different. The neurologic defect was almost entirely confined to cerebellar dysfunction, while the mental defect, although obvious, was distinctly less than in the other cases. Suggestive evidences of possible cerebellar dysfunction also could be demonstrated in cases 1, 2, 4 and 5, although the signs were overshadowed by the other manifestations of central nervous system injury, of which those referable to the basal ganglions predominated. The presence of signs of cerebellar involvement is not surprising in view of the well defined changes that have been demonstrated in the dentate nucleus in a previously reported postmortem study of this condition.[1]

While the evidence is highly suggestive that a certain number of the cases in group 3 represent bona fide examples of cerebral injury due to maternal Rh isoimmunization, it is nevertheless based almost entirely on statistical considerations. It is apparent that further confirmatory evidence is necessary in this respect. A recent report by Snyder, Schonfeld and Offerman[10] is of interest. These investigators carried out a somewhat similar study of the mothers of 68 institutionalized undifferentiated mental defectives and found almost twice the number of Rh negative mothers and incompatible mother-child relationships than should have been present on the basis of random selection. However, as was stated earlier, definite proof of isoimmunization in the mother and of manifestations of erythroblastosis fetalis in the child should be sought for in every case of Rh incompatibility no matter how benign the neonatal period, and this correlated with the subsequent development of the child. It will be primarily through this type of follow-up that validity will be given to what must remain at present a reasonable possibility at best.

It should be noted that our present studies, for reasons previously stated, have been confined to children in the low imbecile and idiot categories. That lesser degrees of cerebral injury associated with only slight evidence of mental defect and neurologic abnormalities may also result from this sensitization mechanism remains to be evaluated. It is evident that the obstetrician and pediatrician must be alert to the possibilities of this type of fetal injury so that pertinent observations may be made at the most opportune time.

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[8] Diamond, L. K., and Abelson, Neva M.: The Demonstration of Anti-Rh Agglutinins: An Accurate and Rapid Slide Test, J. Lab. & Clin. Med. 30:204 (March) 1945.

[9] Zimmerman and Yannet, footnotes 1 and 2.

[10] Snyder, L. H.; Schonfeld, M. D., and Offerman, E. M.: The Rh Factor and Feeblemindedness, J. Hered. 36:9 (Jan.) 1945.

The pathogenesis of the central nervous system injury resulting from maternal isoimmunization is at present unknown. On the basis of our present knowledge, the following tentative hypotheses may be postulated. It has been demonstrated by Boorman and Dodd [11] that in Rh positive individuals the Rh factor is present in practically all tissues, although in small amounts, when compared to the agglutinogens A and B. The possibility of irreversible cellular injury due to an antibody antigen reaction has been suggested. The sparing of certain fetuses might be partly dependent on the relative concentration of antigen in the brain. While other tissues also would be involved, their greater reparative capacities than exists in the neuron would militate against permanent injury. The second and more likely possibility would make the cerebral injury entirely secondary to the destruction of the red blood cells during certain periods of fetal life. Thus, only when the ratio of blood destruction to blood formation in the fetus was such as to result in an inadequate supply of oxygen to the developing neuron would permanent injury ensue. This would presuppose red cell destruction at a period in fetal life when the future definitive hematopoietic organ (bone marrow) was inadequate to compensate for the continuing destruction. Later, when this compensation becomes adequate, further neuronal damage would be prevented, although not before a variable degree of injury had already been established. Thus, only in those cases in which maternal antibodies were produced in sufficient concentration relatively early in pregnancy would kernicterus be observed. This concept would agree with the lack of correlation between the severity of the postnatal hemolytic anemia and the occurrence of kernicterus. Finally, the possibility that the products of extensive red cell destruction per se may be injurious to the developing neuron must be considered.

It is to be expected that more patients with kernicterus will survive than heretofore as our knowledge of the treatment of the natal hemolytic anemia expands. The use of Rh negative blood, the appreciation of the relatively large quantity of blood required and the possibility of using separated red cells will function in this direction. Unfortunately, the brain damage cannot be affected by these means. Since concentration of maternal antibodies can be estimated with reasonable accuracy, it is customary, when laboratory facilities are available, to follow the level of maternal antibody formation throughout pregnancy so that premature interruption of pregnancy can be instituted, if the antibody level shows a tendency to rise rapidly. Whether this will result in a reduced incidence of kernicterus is questionable. It is clear that the fetus is exposed to the maternal agglutinins early in pregnancy and that the brain damage is probably well established at a variable period before term. However, reported experience with premature interruption of pregnancy as a prophylactic measure in this respect is too scanty to warrant drawing definite conclusions.

SUMMARY

The incidence of incompatible mother-child Rh blood typings was found to be significantly higher in a group of undifferentiated mental defectives than in a control group. This suggests that the cerebral abnormality of some of these undifferentiated defectives is probably related to maternal Rh isoimmunization during pregnancy.

Of the 19 cases in the undifferentiated group in which this etiologic possibility exists, 6 cases were found in which either definite or presumptive evidence of maternal isoimmunization was present. The neonatal history in all 6 of these cases was considered compatible with the diagnosis of erythroblastosis fetalis. In 4 of these children the clinical picture was fairly uniform, including spasmodic increases in muscle tone, choreoathetosis and evidence of cerebellar dysfunction. In 1 case the signs of cerebellar dysfunction dominated the picture. In the remaining case there was no athetosis, while the increased muscle tone or spasticity was constant rather than spasmodic.

In the remaining 13 cases no definite evidence of maternal Rh isoimmunization could be demonstrated, and the clinical picture was nondescript except for the mental defect. While statistical considerations suggest that probably 3 or 4 of these may also be etiologically related to the Rh sensitization mechanism, it was felt that confirmatory evidence, both clinical and serologic, obtainable during the neonatal period and related to the subsequent failure in mental development, would be necessary before definite conclusions could be reached in this respect.

ABSTRACT OF DISCUSSION

Dr. Stanley Cobb, Boston: This is a good piece of work along an important and new line of investigation. The results suggest that there is much more work to be done in this field, but these results in themselves are not specific enough to be of much value for clinical diagnosis at the present time. They do open up a vista of possibilities for the prevention of cerebral disease in children with its resultant mental defect and other neurologic aftermaths. Previously this had been a field in which therapy was not known and the outlook was hopeless. Now we may at least try to prevent these things by looking for the Rh factor in the blood of the mother and the child. It would be interesting to extend this investigation to cases of Wilson's disease, for here we have a group of patients with both cerebral and hepatic lesions and it might be that the Rh factor would be important in this disease also. The relation of the liver to the basal ganglions has long been a subject of interest to neurologists, and although the jaundice in these patients described by Yannet and Lieberman was in all probability due to destruction of red cells, yet the liver may also be implicated. In the last war there were some cases in which phosgene gas caused acute atrophy of the liver with kernicterus. It is possible that this approach might be used experimentally and illuminate the subject.

Dr. Bronson Crothers, Boston: Dr. Yannet and Miss Lieberman have brought under review a series of cases which can be definitely removed from the discouraging mass of feebleminded individuals for careful study. The clinical picture which results from severe erythroblastosis with cerebral damage is reasonably typical. The children that I have recognized are essentially decerebrate with tonic neck reactions and rigidity with athetosis. They are profoundly defective. The suggestion that there must be many less severe cases should be pursued. The authors make out a case which should be considered by every one who sees young defective children in considerable numbers. It is entirely practicable to collect evidence, and unfortunately the material is readily and continuously available.

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[11] Boorman, Kathleen E., and Dodd, Barbara E.: Group Specific Substances A, B, M, N, Rh: Their Occurrence in Tissues and Body Fluids, J. Path. & Bact. 55:329 (July) 1943.

Dr. Herman Yannet, Southbury, Conn.: I am indebted to Dr. Cobb and Dr. Crothers for their discussion and suggestions. The possibility raised by Dr. Cobb that there might be a relationship between kernicterus and Wilson's disease was discussed in an earlier paper (Zimmerman, H. M., and Yannet, Herman: Kernicterus, *Am. J. Dis. Child.* **45**:740, 1933). The striking dissimilarities, especially the times of onset of clinical symptoms in Wilson's disease, make it very unlikely that the two conditions are related. However, Rh investigative procedures could very easily be applied, so that any doubt may be dispelled.

PENICILLIN IN SPINAL FLUID AFTER INTRAVENOUS ADMINISTRATION

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Demonstrable penicillin levels in the cerebrospinal fluid have been reported after intravenous or intramuscular administration only in patients who had inflammatory processes of the meninges[1] or when the penicillin was given by direct instillation.[2] Attainment of significant[3] penicillin activity in the cerebrospinal fluid of patients who did not show evidence of meningeal involvement is not reported in the available literature.

McDermott and Nelson[4] and Mackie,[5] utilizing intramuscular doses as high as 500,000 Oxford units, failed to achieve significant cerebrospinal fluid concentration. Our own efforts, during the past twenty-two months, after intramuscular doses of 20,000, 40,000 and 200,000 units have likewise been unsuccessful. Neymann, Heilbrunn and Youmans[6] recently concluded that the intravenous and intramuscular methods of administration of penicillin were ineffective because "the hematoencephalic barrier cannot be breached."

We are presenting a series of cases in which significant levels of penicillin were obtained in the cerebrospinal fluid by means of the intravenous route of administration.

Massive dose penicillin therapy by continuous intravenous drip is being investigated as a method of treatment of early syphilis the results of which will be the subject of a later report. A group of 162 patients exhibiting clinical evidence of primary or secondary syphilis was the subject of this study. All were dark field positive for Treponema pallidum. Eligibility for treatment was determined on the basis of freedom from detectable pathologic changes of the cardiovascular pulmonary, urinary and hemopoietic systems. Electrocardiograms and 2 meter chest roentgenograms were included in the pretreatment medical survey. Cerebrospinal fluid examinations performed routinely before treatment revealed normal findings in all but 9 patients. There was no clinical evidence of meningeal involvement. Previous investigation[7] revealed abnormal cerebrospinal fluid in 16.4 per cent of 1,380 patients with untreated early syphilis. It was thought that by the intravenous administration of massive amounts the penicillin might surmount the hematoencephalic barrier and circulate through the cerebrospinal fluid system.

The patients received sodium penicillin by the continuous intravenous drip method in amounts ranging from 10 million to 25 million units over a twenty-four hour period. The total amount of penicillin was contained in 1,000 cc. of isotonic solution of sodium chloride.

The administration of penicillin by the intravenous drip technic is known to cause thrombophlebitis;[8] therefore an attempt was made to circumvent this complication by the use of the anticoagulant heparin incorporated in the "Pitkin menstruum"[9] Three hundred mg. of heparin was injected subcutaneously into the anterolateral aspect of the thigh immediately before the institution of penicillin therapy.

The patients were given the intravenous drip by the usual technic utilizing veins of the forearm. The rate of flow of the solution was regulated by means of a pinch clamp to deliver 1,000 cc of solution continuously over a twenty-four hour period.

The levels of penicillin in the blood and cerebrospinal fluid were determined by the method described by Rosenblatt, Alture-Werber, Kashdan and Loewe[10] at intervals of six hours during the drip procedure and six hours after completion of therapy. All blood specimens were kept in the refrigerator until immediately before setting up the tests, which were run daily. The serums were removed by centrifugation and tested for penicillin activity by a tube dilution technic using Streptococcus pyogenes, strain C-203, group A, as the test organism. The calcium salt of penicillin supplied by the Food and Drug Administration was used as a reference standard.

The specially prepared penicillin utilized in these investigations was supplied by Mr. John L Smith of the Charles Pfizer and Co Inc

Because of lack of space, this article is abbreviated here by the omission of tables giving the penicillin levels in patients receiving 10, 15, 20 and 25 million Oxford units

From the office of the President of the Chicago Board of Health and the Chicago Intensive Treatment Center, Venereal Disease Control Program, in cooperation with the United States Public Health Service

Valuable advice was given by Dr Philip Rosenblatt Loyal assistance was given by Drs H C McCraney and Lydia Marshak The work was made possible with the help of a technical group consisting of Elsie Miller, B A., Ellen Bienfang, R N, and Mary Gleason

[1] Tee, G H. A Case of Meningococcal Meningitis Treated with Penicillin, Lancet **1**:118 (Jan 27) 1945 Rosenberg, D H, and Sylvester, J C.: The Excretion of Penicillin in the Spinal Fluid in Meningitis, Science **100**:132 (Aug. 11) 1944 McDermott and Nelson[4]

[2] Bloomfield, A L; Kirby, W. M., and Armstrong, C D A Study of "Penicillin Failures," J A M. A **126**:685 (Nov 11) 1944 Rosenberg, D H, and Arling, P. A. Penicillin in the Treatment of Meningitis, ibid **125**:1011 (Aug 12) 1944 Herrell, W L; Nichols, D R, and Heilman, D H: Penicillin, ibid. **125**:1003 (Aug 12) 1944 McCune, W S, and Evans, J. M · Intraventricular Penicillin in the Treatment of Staphylococcic Meningitis, ibid **125**:705 (July 8) 1944 Baird, K. H.: Penicillin Therapy of Pneumococcic Meningitis Report of a Case with Recovery Following Intraspinal, Intracisternal, and Intraventricular Administration of Penicillin, J. Pediat. **26**:287 (March) 1945. Neymann, Heilbrunn and Youmans[6]

[3] Significant levels for the purposes of this paper are 0 01 to 0 078 unit per cubic centimeter, as reported by McDermott, Benoit and DuBois (Time Dose Relationships of Penicillin Therapy III Regimens Used in Early Syphilis, Am J Syph, Gonor. & Ven Dis **29**:345 [May] 1945) to be the "effective level" for Treponema pallidum, group A streptococcus and many other organisms

[4] McDermott, W, and Nelson, R. A · The Transfer of Penicillin into the Cerebrospinal Fluid Following Parenteral Administration, Am. J Syph., Gonor., & Ven Dis **29**:403 (July) 1945

[5] Mackie, T. J.: Personal communication to the authors

[6] Neymann, C. A; Heilbrunn, G, and Youmans, G P Experiments in the Treatment of Dementia Paralytica with Penicillin, J A M. A. **128**:433 (June 9) 1945.

[7] Bundesen, H N, Bauer, T J, and Kendell, H W The Intensive Treatment of Gonorrhea and Syphilis, J. A. M A. **123**:816 (Nov 27) 1943.

[8] Anderson, G D The Treatment of Infections with Penicillin, New England J Med **232**:400 (April 5) 1945 Keefer, C. S, Blake, F. G; Marshall, E J., Jr., Lockwood, J. S, and Wood, W. B, Jr. Penicillin in the Treatment of Infections· Report of 500 Cases, J A. M. A **122**:1217 (Aug 28) 1943

[9] Loewe, L, and Rosenblatt, P A New Practical Method for Subcutaneous Administration of Heparin, Am J. M. Sc. **208**:54 (July) 1944

[10] Rosenblatt, P.; Alture Werber, E; Kashdan, F., and Loewe, L· A Method for the Determination of Penicillin Levels in Body Fluids, J Bact **48**:599 (Nov) 1944.

A lumbar puncture was performed within thirty minutes of completion of treatment and the penicillin concentration of the cerebrospinal fluid determined.

It was decided, after the first 25 patients had been studied, to determine the level of penicillin in the blood only twice during the period of treatment, at twelve and twenty-four hours after the institution of therapy.

Penicillin was demonstrated in measurable concentration in the cerebrospinal fluid of 126 of the 162 patients (77.7 per cent). These 126 comprised 48 of the 53 (91 per cent) patients who had received over 10 million units of penicillin and 78 of the 109 (71.5 per cent) patients treated with 10 million units of penicillin. The concentration of penicillin ranged from 0.02 to 0.55 Oxford unit per cubic centimeter. Patients receiving 10 or 15 million units showed 0.10 or below with 2 exceptions, and 49.3 per cent of the specimens on the 10 million group reveal 0.02 to 0.03 Oxford unit. The highest level, 0.55 Oxford unit, was obtained for 1 patient on the 25 million unit schedule. The range in levels for the 9 patients with abnormal cerebrospinal fluids was from 0.02 to 0.40 Oxford unit.

No conclusive evidence was established as to the relationship of body weight to levels of penicillin in the cerebrospinal fluid.

There was a direct relationship between the total dosage and the level of penicillin in the cerebrospinal fluid, as shown in the table.

The relationship between the amounts of penicillin in the cerebrospinal fluid and the blood was not clearly established, although some tendency was indicated. Thirty-one patients of the 109 (28.4 per cent) treated with 10 million units had no penicillin activity in the cerebrospinal fluid. Twenty-four of this group (77.4 per cent) had 20 units of penicillin or less in the blood. Seventy-eight (71.5 per cent) patients did have penicillin activity in the cerebrospinal fluid. Thirty-seven (47.4 per cent) of this group had 20 or more units of penicillin in the blood

Concentration of Penicillin in the Cerebrospinal Fluid

Oxford Units per Cubic Centimeter

Total Dose of Penicillin in Million Oxford Units	Maximum	Minimum	Average	Per Cent of Patients Showing Penicillin
10	0.30	0.00	0.029	71.5
15	0.12	0.00	0.048	70.6
20	0.40	0.025	0.043	100.0
25	0.55	0.01	0.213	100.0

An analysis of blood levels taken six hours after treatment was completed showed detectable penicillin in only 7 of 31 patients studied.

COMMENT

Clinical improvement has been observed in the penicillin treatment of the purulent meningitides,[11] neurosyphilis [12] and brain abscess,[13] but there are few studies on the levels of penicillin in the cerebrospinal fluid.

The importance of attaining an effective therapeutic level of penicillin in the cerebrospinal fluid in those diseases in which it is desirable that the drug arrive at the site of the pathologic process cannot be overemphasized.

As the instillation of penicillin directly into the cerebrospinal fluid via lumbar, cisternal or ventricular puncture is technically difficult and often hazardous,[14] the achievement of an effective therapeutic penicillin level by the intravenous method of administration is of prime importance.

Reactions were encountered in some patients during and after treatment consisting of thrombophlebitis, nausea, vomiting and azotemia. These will be presented in detail in a subsequent report. No fatalities occurred and no convulsions or signs of meningeal irritation were observed.

SUMMARY

Patients with early syphilis were given penicillin by the continuous intravenous drip technic in amounts varying from 10 to 25 million units in a period of twenty-four hours.

Significant quantities of penicillin were demonstrated in the cerebrospinal fluid in the majority of the patients.

Clinical Notes, Suggestions and New Instruments

ENDOMETRIOSIS CAUSING INTESTINAL OBSTRUCTION

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Endometriosis externa occurs not infrequently. This condition is usually seen involving the oviducts, pelvic peritoneum, rectum and mesorectum.[1] It has also been seen involving the ileum, appendix, cecum, ureter, bladder and skin surfaces particularly in the region of the umbilicus and in old operative scars of the anterior abdominal wall. Green-Armytage [2] reports the general incidence of endometriosis as 8.9 per cent in 1,000 surgical cases.

Endometrial implantation means that there is primary seeding from the site of origin. Endometrial transplantation means that there is secondary embedding from an implant. The case reported here represents endometriosis externa of the implant type.

With the exception of rectum and mesorectum, intestinal contaminations are all derived primarily from the tubal "spill" or secondary rupture of endometrial cysts. Every transplant or implant on a free peritoneal surface becomes a potential center for further transplants.

When a group of endometrial cells settles on a favorable surface, fixation occurs followed by invasion. A small operculum in the peritoneum by which the invasion was made soon closes over and a potential endometrial cavity is formed. These tissues tend to develop their original architecture. A menstruation diapedesis occurs in this potential cavity at the next menstrual epoch, and rupture at any subsequent menstruation is a possibility. Parts of the gastrointestinal tract most susceptible to these transplantations or implantations are the sigmoid, rectum, appendix, cecum and the lower part of the ileum.[1]

Intestinal obstruction as a result of endometriosis has been observed frequently. Most instances, however, are those involving the sigmoid and mesorectum. Relatively few cases of acute complete obstruction have been recorded in the literature. Glenn and Thornton[3] report 2 cases of partial intestinal obstruction of the chronic type due to endometrial implantation.

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[11] Tee [2] and the references given in full in footnote 2.

[12] Nelson, R. A., and Duncan, L.: Acute Syphilitic Meningitis Treated with Penicillin, Am. J. Syph., Gonor. & Ven. Dis. **29**: 141 (March) 1945 Gammon, G. D., and others: Penicillin in Neurosyphilis, J. A. M. A. **128**: 653 (June 20) 1945. Goldman, D.: Treatment of Neurosyphilis with Penicillin, ibid. **128**: 274 (May 26) 1945.

[13] Furlow, L. T.: Penicillin as an Adjunct to Surgery in the Treatment of Brain Abscess: Report of 6 Cases, South. M. J. **38**: 312 (May) 1945.

[14] Johnson, H. C., and Walker, A. E.: Intraventricular Penicillin: A Note of Warning, J. A. M. A. **127**: 217 (Jan. 27) 1945. Neymann, Heilbrunn and Youmans.[6]

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[1] Goodall, Robert: A Study of Endometriosis, Philadelphia, J. B. Lippincott Company, 1943.

[2] Green-Armytage, V. B.: Endometriomata: The Five Clinical Types, Brit. M. J. **1**: 602 (April 8) 1933.

Masson[4] reports 689 organs of 576 patients with endometriosis. Most of the structures involved were pelvic genital organs. The intestines were involved in 17 instances; of these the colon was involved 14 times, the appendix twice and the ileum once. Keen and Kimbrough[5] did not find the small bowel involved in any of 118 proved cases of endometriosis, nor did Cullen[6] in reporting personal observations over a twenty-five year period. A review of the English literature over a twenty-five year period revealed only 4 cases of endometrial implants involving the small bowel and producing varying degrees of obstruction, none acute. However, the true incidence of endometrial implants in the small bowel is unknown.

This case is worthy of recording because of the short duration of symptoms from the time of onset. Also this patient had an appendectomy performed fifteen years previously, at which time no pathologic state other than acute appendicitis was observed. Furthermore, it represents an instance of acute complete obstruction due to endometriosis which necessitated resection of a part of the ileum.

REPORT OF CASE

A white woman aged 38, first seen by us on Dec. 31, 1944, complained of midepigastric pain, nausea and vomiting.

Her past history was negative except for scarlet fever at 16 years, a submucous resection in 1926, an appendectomy in 1930 and a tonsillectomy in 1931.

Menstruation started at the age of 13. The flow was moderate. There was always slight dysmenorrhea; the cycle was twenty-one to thirty-one days. There were no pregnancies, miscarriages or abortions. No intermenstrual discharge or pain was elicited.

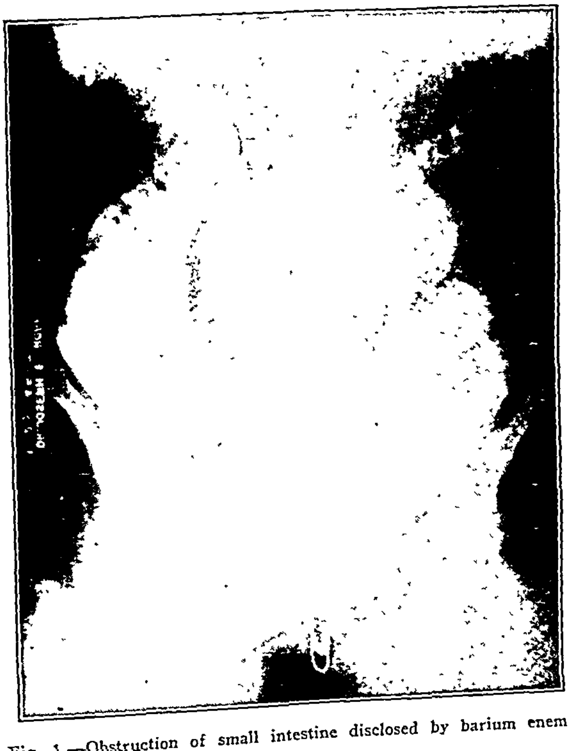

Fig. 1.—Obstruction of small intestine disclosed by barium enema..

She stated that her first attack of pain was on Nov. 19, 1944 at the time of her regular period. This pain was continuous and quite severe. It lasted until her period stopped. For the remainder of November and also during her December period she had no pain. On December 31 she started to menstruate again, and the same pain recurred. She vomited and was somewhat relieved. The pain continued, however, for the full duration of her period. Since this pain was midepigastric and at times radiated to her back and right subscapular region, it was necessary to rule out peptic ulcer and cholelithiasis.

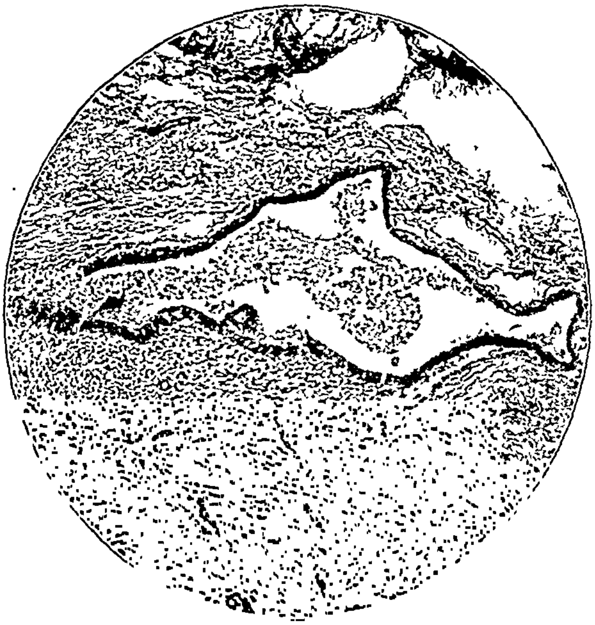

Fig. 2.—Section of ileum, slightly reduced from a photomicrograph with a magnification of 100 diameters.

An upper gastrointestinal series and cholecystogram were negative. Gastric analysis was normal. Antispasmodics and sedation were prescribed during the following intermenstrual period, and the patient was without symptoms. There were no tarry stools, the vomitus was never bloody nor was the patient jaundiced at any time.

On Jan. 27, 1945 the patient began to menstruate. At this time she also developed severe right lower quadrant pain, abdominal distention, nausea and vomiting. It became evident that she was having some sort of small bowel obstruction. Peristalsis was hyperactive with gurgling. Tympanites was present and the pain soon became generalized. The temperature was 100 F., and white blood cells numbered 10,000. Morphine sulfate ¼ grain (0.016 Gm.) hourly was required for relief of pain. A gastrointestinal series with barium enema was performed (fig. 1) and established the diagnosis of small bowel obstruction. Laparotomy was performed by Dr. Deibert as follows:

Under spinal procaine anesthesia a right rectus incision was made. The omentum was found to be adherent to the parietal peritoneum. These were incised and the contents of the abdominal cavity were found to be normal, except for the terminal ileum, which showed what appeared to be a hard constricting band of fibrous tissue about 3 inches from the ileocecal junction. This completely occluded the lumen of the bowel. A resection of the involved portion was done and a side to side anastomosis of the ileum and cecum was performed. Convalescence was uneventful.

Review of histologic sections (fig. 2) by Dr. Read revealed the following:

Diagnosis: Endometriosis of the ileum.

Gross: The specimen was 6 cm. of small bowel. The mucosal surface appeared relatively normal, but there was thickening and distortion of the serosa.

Microscopic: The section was of ileum. The mucosa and submucosa were relatively normal. The muscularis showed hypertrophy and here, but more particularly in the serosa, there were small collections of simple glands surrounded by stroma. There were erythrocytes in the lumen of some of the glands. The lesion was endometriosis of the serosa of the ileum.

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3. Glenn, P. M., and Thornton, J. J.: Endometriosis of the Ileum, J. A. M. A. **115:** 520-522 (Aug. 17) 1940.
4. Masson, J. C.: Surgical Significance of Endometriosis, Ann. Surg. **102:** 819 (Nov.) 1935.
5. Keen, F. E., and Kimbrough, R. A., Jr.: Endometriosis: A Review Based on the Study of 118 Cases, J. A. M. A. **95:** 1164 (Oct. 19) 1935.
6. Cullen, T. S.: The Distribution of Adenomyomas Containing Uterine Mucosa, Arch. Surg. **1:** 215 (Sept.) 1920.

COMMENT

In a case of acute intestinal obstruction involving the terminal ileum, the cause was endometriosis. The symptomatology at first suggested cholecystic disease or peptic ulcer. The history was typical of endometriosis, the attacks coinciding with the menstrual periods. As noted, this is an unusual type of complete small bowel obstruction.

2029 Delancey Street.

Council on Pharmacy and Chemistry

REPORT TO THE COUNCIL ON PHARMACY AND CHEMISTRY

Six drug manufacturers interested in thiouracil have cooperated with the Food and Drug Administration to prepare a survey by questionnaire of the toxicity of this drug. The study involved the results of the use of thiouracil in 5,745 cases and was undertaken before the drug became available in interstate commerce. When the survey was completed it was reported to the Council on Pharmacy and Chemistry with a view to informing this body, and through it the medical profession, of the status of thiouracil. The Council warmly commends such cooperation and urges that manufacturers show a similar spirit in other therapeutic problems of common interest. When physicians are supplied with potent drugs they must also be supplied with adequate information concerning their actions, use and dangers.

AUSTIN SMITH, M.D., *Secretary*,

THE CLINICAL TOXICITY OF THIOURACIL

A Survey of 5,745 Cases

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Because of the difficulty of determining from reports in the literature the incidence and severity of the toxic reactions resulting from the administration of thiouracil for the treatment of hyperthyroidism, a survey by questionnaire has been made of 5,745 patients treated by 328 clinical investigators. The results derived from this survey have been analyzed by statistical methods and constitute the basis of this report.

Data obtained by questionnaire are subject to certain inherent errors. Failure to answer a question, misinterpretation of a question and accidental insertion of an incorrect figure are among the sources of error in organizing such statistics. The necessity for arbitrary grouping and condensation of data and the inability to reflect secondary factors influencing the answer to a given question contribute to the errors of analysis. Some of these deviations can be held to a minimum by careful phrasing of the questionnaire and by intelligent interpretation of the answers. In a consideration of the data presented here, therefore, these inherent errors must be borne in mind although accepted statistical methods were used in their organization so as to limit the deviations to an irreducible minimum. It is believed nevertheless that the trends disclosed and the conclusions reached as a result of this survey are correct, even though the statistics are subject to the errors mentioned.

CLINICAL MATERIAL AND THERAPEUTIC APPRAISAL

The material which forms the basis for this report is derived from large clinics, from small clinics and from individual practitioners. Some of the patients were subjected to the closest scrutiny, which included repeated and extensive laboratory studies; others were followed in less detail.

Many patients were hospitalized, but many were ambulatory during treatment. Despite these variations, it is believed that the results of this survey represent closely those which may be expected when thiouracil becomes generally available to all physicians.

Since the clinical safety of any potent therapeutic agent should be appraised only in the perspective of its therapeutic usefulness, certain information regarding the value of thiouracil in the treatment of hyperthyroidism was collected. Published reports leave little doubt that in most instances the administration of thiouracil can bring about a remission of the hyperthyroid state. Its usefulness in other conditions associated with derangements of thyroid activity has not been completely evaluated.

This survey revealed that thiouracil is effective against all types of hyperthyroidism whether these are represented by diffuse or by nodular goiters and regardless of the number of nodules. Thiouracil may also be of value in the treatment of acute thyroiditis, although data on this condition are scanty. The drug has been tried and found to be of no value in simple goiter. It has been tried without any useful effect in conditions with related symptomatology but where no hyperthyroidism exists.

An attempt was made to determine what, if any, factors contributed to a successful outcome of thiouracil therapy. The incidence of failure to respond to thiouracil has been correlated with such factors as dose, duration of treatment, and whether iodine therapy had been used prior to thiouracil. Only those cases in which thiouracil was used for treatment of hyperthyroidism are considered and failures directly attributable to toxic reactions are not included in the accompanying tabulations.

A correlation could not be established between either the initial dose or the maintenance dose and the incidence of failure. The number of cases in which 0.1 Gm. per day was given as an initial dose is too small to be statistically significant. The majority of investigators used either 0.4 Gm. per day or 0.6 Gm. per day, and since the results are as satisfactory at the lower figure as at the higher, it would appear preferable to recommend 0.4 Gm. per day as the initial dose.

Clinical experience has shown that thiouracil should be administered in divided doses throughout the twenty-four hour period. Administration only once a day is generally followed by poor results. For best results it is suggested that the total daily dose be divided into three or four parts which are administered at equal intervals during the waking hours.

It has been a common observation that a clinical response to thiouracil may not be seen for several weeks

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Miss Lila Knudsen and Mr. Pete James of the Food and Drug Administration tabulated the data and supplied the statistical analysis.

From Drug Division, Food and Drug Administration, Federal Security Agency, and the Medical Departments of Lederle Laboratories, Abbott Laboratories, Eli Lilly & Co., E. R. Squibb and Sons, Parke Davis & Co, and the Upjohn Company.

after treatment is started. In this survey there were 209 failures reported in which the duration of treatment was given. Chart 1 shows that the incidence of successful treatment increased as the duration of treatment was prolonged. No explanation is apparent for the low incidence of success at six months, but the figure for thirteen months was derived from too small a number of patients to be significant. To emphasize the desirability of prolonged treatment before classifying a lack of response as a failure, it was observed that in 34 per cent of those patients reported as failures, treatment was discontinued before the eighth week.

TABLE 1.—*Failures of Thiouracil Therapy in Relation to Initial Dose of Thiouracil*

Initial Dose, Gm. per Day	Total Cases	Failures	
		Number	Per Cent
0.1	35	0	0.0
0.2	268	9	3.4
0.3	187	12	6.4
0.4	669	30	4.5
0.5-0.6	3,448	135	3.9
0.7-0.9	504	32	6.3
1.0 or over	622	31	5.0
Total........	5,733	249	4.3

It is not uncommon for a patient to show no response to thiouracil in the first four to eight weeks of treatment if iodine had previously been administered or if the gland was large and soft. It is noteworthy, therefore, that of the 71 failures which occurred during the first eight weeks 70 per cent had had iodine therapy prior to thiouracil treatment. This suggests that some might have responded satisfactorily if the medication had been continued for longer periods.

It was not possible to obtain reliable figures on the incidence of remissions induced by thiouracil. By remission is meant absence of symptoms and a basal metabolic rate within the normal range after the drug was discontinued. The majority of investigators did not terminate treatment except in those cases in which thyroidectomy was performed; hence there is no way to determine the duration of remission without the drug. It is evident, however, that of the 1,236 remissions reported in the series 33.7 per cent had relapsed at the time of inquiry. Remissions as long as a year or more have been reported, but the average relapse occurred in about twenty weeks. Hence, until more is known regarding the conditions influencing both remission and relapse, it is futile to speculate on this problem.

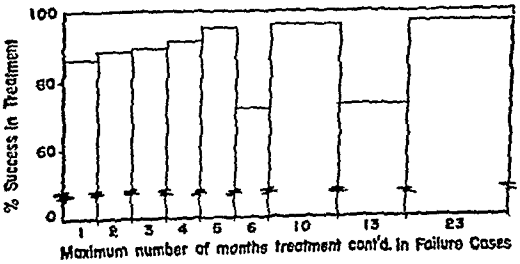

Chart 1.—Relation of satisfactory response to thiouràcil to duration of treatment.

TYPE AND INCIDENCE OF TOXIC REACTIONS

The principal toxic reactions observed following medication with thiouracil are granulocytopenia, leukopenia, drug fever and dermatitis. At least twenty-seven other reactions were recorded, of which only eight were observed in more than 2 cases. This suggests that most of the reported side reactions other than those specifically named or the eight mentioned later were not related to thiouracil medication.

Twenty-eight investigators reported that the drug occasionally produced nausea sometimes accompanied by dizziness, headache or abdominal cramps. Parotitis and joint pains have each been reported by seven investigators. Purpura was reported by six, jaundice by four, diarrhea by four, thyroiditis by three and secondary anemia by three investigators. Edema, particularly of the extremities, has been mentioned by several investigators as occurring during therapy. It is not clear in all cases that this was due either directly to the drug or to the rapid metabolic and circulatory changes resulting from correction of the hyperthyroidism.

The eight complications of low incidence may or may not be related to administration of thiouracil, since these reactions did not occur with a frequency greater than expected in 5,000 persons selected at random and observed for a period of six months to a year. It is recommended, however, that these complications should be watched for, since it cannot definitely be proved that the drug was not the responsible agent.

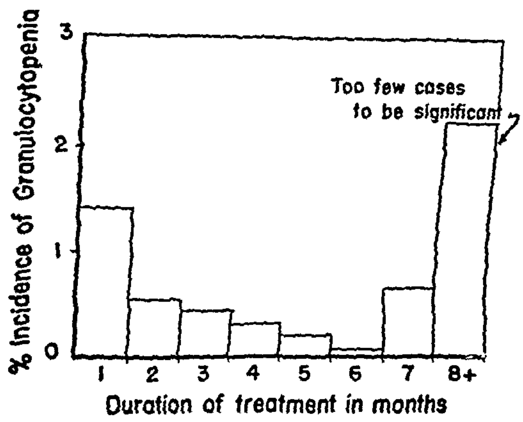

Chart 2.—Relation of incidence of granulocytopenia to duration of treatment.

In the series studied in this investigation, 752 cases in which one or more side reactions occurred were reported. This represents an incidence of 13.1 per cent. These complications were considered by the investigators as severe enough to warrant discontinuance of therapy of 452 patients, or 60.1 per cent of those showing some side reaction.

GRANULOCYTOPENIA

Since the most serious complication of thiouracil therapy appears to be granulocytopenia, it was pertinent to inquire concerning the frequency of this complication and whether its occurrence could be correlated with the dose, duration of treatment or other factors. A diagnosis of granulocytopenia was accepted if the total white count was below 4,000, the granulocytes particularly diminished and associated with sudden onset and acute symptoms such as fever, sore throat, prostration and malaise. Unfortunately not all cases of apparent malignant granulocytopenia are clearly distinguishable from simple neutropenia, particularly in the early stages. The investigators reported 168 cases of granulocytopenia, but only 142 of these could clearly be classed as the frank malignant type. The remaining 26 cases appeared to be early cases or atypical simple leukopenia with neutropenia, but because the investigators classed them as granulocytopenia they are included as such in these tabulations. The 142 cases of granulocytopenia represent an incidence of 2.5 per cent of this complication and accounted for about 22 per cent of all toxic reactions.

Table 2.—*Incidence of Granulocytopenia During Thiouracil Therapy in Relation to Initial Dose of Drug*

Initial Dose, Gm. per Day	Total Cases	Granulocytopenia: Number of Cases	Granulocytopenia: Per Cent of Total Cases
0.1-0.4	1,159	33	2.8
0.5-0.6	3,448	109	3.2
0.7-0.9	504	14	2.8
1.0 and over	612	12	2.0

It can be seen from table 2 that there is no significant relationship between the incidence of granulocytopenia and the dosage of thiouracil. There was, however, a very clear relationship between the duration of treatment and the occurrence of this complication. Chart 2 shows that the incidence of granulocytopenia was greatest during the first four weeks of treatment and declined progressively thereafter. The incidence of this complication in the first month of treatment was 1.4 per cent, and more than one half of all the cases occurred during this period. Seventy per cent of the cases of granulocytopenia occurred by the end of the eighth week of treatment. No apparent explanation was found for the high incidence during the seventh month of treatment, but it is suggested that some patients may have lapsed in treatment at this time, and it is generally believed that resumption of therapy after such a lapse may predispose the patient to this complication.

One case of agranulocytosis was reported to have occurred during the fifty-sixth week of treatment, and 1 case, not included in these tabulations, was reported to have occurred six months after discontinuance of treatment. The first case may also have occurred after a temporary discontinuance of therapy.

There were twenty-one deaths, all attributable to agranulocytosis, establishing a mortality rate of 0.4 per cent for the entire series and a case fatality rate for agranulocytosis of 14 per cent. From the information available in the literature and that obtained in this survey, the most effective treatment of agranulocytosis due to thiouracil appears to be the parenteral administration of massive doses (500,000 units per day) of penicillin, and some investigators suggest repeated transfusions of small amounts (200 to 300 cc.) of whole blood. However, there are some who are not in favor of unnecessarily frequent blood transfusions because it has been shown statistically that repeated transfusions increase the risk of transfusion reaction. There is no satisfactory evidence that pantothenic acid, pyridoxine, folic acid, vitamins or pentnucleotide influence the outcome of this disease or aid in preventing such reactions. The most important factor in the control of granulocytopenia resulting from thiouracil therapy appears to be discontinuance of therapy at the earliest sign of this complication and prompt institution of vigorous treatment. It is imperative that the patient be instructed to stop the drug and report immediately to the physician if symptoms such as sore throat, fever, coryza or malaise are noted. The value of repeated blood counts is emphasized by the fact that 1 patient was found to have a complete absence of granulocytes three days before any symptoms developed.

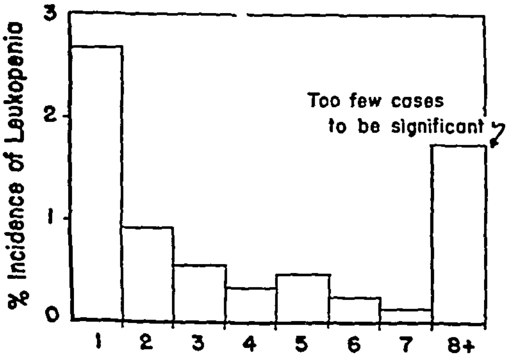

Chart 3.—Relation of leukopenia to duration of treatment.

LEUKOPENIA

One third of all the reported toxic reactions consisted of a leukopenia. In many instances it was difficult to distinguish between a simple leukopenia and an early malignant granulocytopenia. In this survey a designation of simple leukopenia was made when the total white blood cell count was below 4,000, the differential count was relatively normal and the patient showed no subjective symptoms. It may be questioned whether all the cases of leukopenia reported were actually caused by thiouracil administraion, since hyperthyroidism itself predisposes toward a leukopenic state. However, there seems to be a clear relationship between the administration of the drug and the onset of this complication, and it is felt that any reduction in total white count while the patient is under treatment with thiouracil should be viewed seriously.

Table 3.—*Incidence of Leukopenia in Relation to Initial Dose of Thiouracil*

Initial Dose, Gm. per Day	Total Cases	Leukopenia Cases	Per Cent Incidence
0.1-0.4	1,159	58	5.0
0.5-0.6	3,448	119	3.5
0.7-0.9	504	44	8.7
1.0 and over	622	30	4.8

Of the 251 cases of leukopenia reported in this series, 234 lend themselves to fairly detailed analysis. This complication had an overall incidence of 4.4 per cent. From table 3 it may be seen that dosage bore no relationship to the incidence of leukopenia. The relationship between incidence and duration of treatment is shown in chart 3 and resembles closely that of granulocytopenia. The incidence of leukopenia in the first four weeks was 2.7 per cent, and 60 per cent of all these cases occurred during this period. Seventy-five per cent had occurred by the end of eight weeks and 95 per cent by the end of six months.

In a number of cases in which leukopenia developed, administration of thiouracil was continued and in nearly half of these a gradual return of the white cell count to normal limits was observed. No reliable figures were obtained on the seriousness of this complication, and it appears that in some instances it may not be harmful to the patients. However, since it cannot be predicted which case may or may not have a serious prognosis, it would seem imperative either to discontinue treatment or have the patient report to the physician at frequent intervals for repeated examinations of the blood. Hospitalization of the patient should be considered if examination reveals a decided reduction in granulocytes.

This precaution is further emphasized by the fact that although 121 patients developed granulocytopenia without a previous leukopenia, and 198 patients developed a leukopenia which did not pass into a granulocytopenia, 47 patients had both complications. If these two complications were to occur in the same individual purely on the basis of chance, it would be expected that these would occur in not more than 7 or 8 patients in a series of the size studied. The actual incidence was six and one-half times the expected incidence, and this difference, when tested by statistical methods, was found to be highly significant ($P<0.001$). This suggests that all patients who develop a leukopenia during therapy should be closely watched.

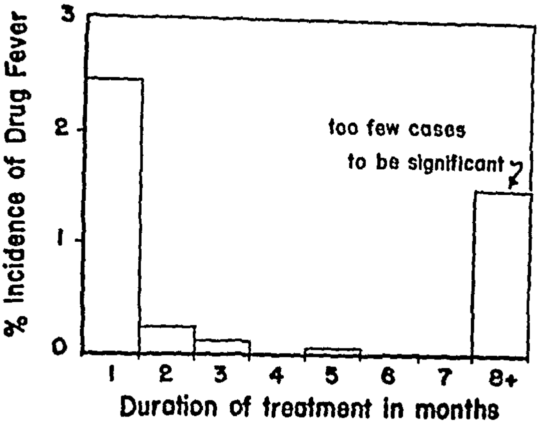

Chart 4.—Relation of drug fever to duration of treatment.

DRUG FEVER

Drug fever is a reaction not infrequently seen following therapy with a wide variety of substances. It is not surprising, therefore, that this complication was reported in 154 individuals following thiouracil therapy. The incidence of this reaction amounted to 2.7 per cent of all cases and accounted for 20.5 per cent of all toxic reactions. By reference to table 4 it is evident that dosage did not influence the incidence of this reaction. Furthermore, this reaction usually occurs early in the course of therapy, as is shown in chart 4.

Table 4.—*Incidence of Drug Fever in Relation to Initial Dose of Thiouracil*

Initial Dose, Gm. per Day	Number of Cases	Cases with Drug Fever	Per Cent Incidence
0.1-0.4	1,159	37	3.2
0.5-0.6	3,418	86	2.5
0.7-0.9	604	10	2.0
1.0 and over	622	21	3.3

Thirty per cent of these reactions occurred in the first week of therapy and 85 per cent had occurred by the end of the fourth week. Nearly 10 per cent of the cases of drug fever were observed in the first forty-eight hours, and, if the patient was retested with the drug, fever usually occurred in less than twelve hours. An interesting observation made by several investigators was that when drug fever occurred early in therapy it was usually a more severe reaction, with temperatures as high as 106 F. reported in some instances. In those instances in which the fever was seen during the later stages of therapy, the temperature seldom exceeded 102 F. and the entire reaction was of a milder nature. Since a fever is part of the syndrome of agranulocytosis, any patient receiving thiouracil who develops a fever should be examined immediately and white blood cell and differential counts should be obtained in order to rule out agranulocytosis before classifying the fever as a temperature reaction only.

SKIN REACTIONS

The skin reactions which occurred during thiouracil therapy were varied and usually of a mild nature. One hundred and eighty-nine instances of these complications were observed, an incidence of 3.3 per cent. One fourth of the adverse reactions from thiouracil were skin reactions. The frequency of the various types of skin reaction are given in table 5. As might be expected, dosage had no influence on the incidence, and although there was some tendency for the reactions to occur early in treatment, particularly if other complications occurred in the same patient, the relationship between duration of treatment and incidence was not as striking as that seen with the other complications.

Table 5.—*Skin Reactions from Thiouracil Therapy in 5,745 Patients*

	Cases
Urticaria	64
Papular rash	37
Morbilliform rash	23
Erythema	18
Macular rash	17
Acneform rash	3
Pruritus	3
Edema of legs	1
Unspecified dermatitis	23

Table 6.—*Opinions on Relative Safety of Thiouracil*

Is the incidence of toxic reactions to thiouracil greater or *less* than complications of present methods of treating hyperthyroidism?

Answer	Per Cent of Investigators
Less	78.6
Greater	4.2
No opinion	17.2

Although none of the skin reactions were reported as serious, the occurrence of urticaria cannot be regarded as an innocuous reaction. In the case of the sulfonamides such reactions have frequently been associated with more severe complications; hence it would seem advisable to discontinue thiouracil therapy or proceed with great caution if the patient shows an allergic response.

Because of relatively high incidence and severity of the toxic reactions following thiouracil therapy, an attempt was made to poll the investigators regarding their opinions of the relative safety of this drug. The following question was asked:

> In your opinion is the incidence of toxic reactions greater than the incidence of bad results (including postoperative thyroid crisis, injury to recurrent laryngeal nerve, parathyroid tetany and other operative complications; uncontrolled or fatal thyrotoxicosis in patients in whom operation is inadvisable or contraindicated) seen with other methods of treatment?

The answers to this question are summarized in table 6. It is apparent that the large majority of those who have had experience with thiouracil feel that it offers a definite advantage over present methods of treatment of hyperthyroidism from the standpoint of safety.

SUMMARY AND RECOMMENDATIONS

On the basis of this survey covering the experience of 328 investigators in 5,745 cases, the following recommendations appear justified:

1. Thiouracil is effective in the management of thyrotoxicosis and possibly thyroiditis.
2. Thiouracil is of no value and should not be used in other derangements of thyroid activity or in conditions not associated with hyperthyroidism.
3. More information should be secured concerning the induction of remissions by thiouracil and the factors affecting the permanence of these remissions.
4. At present the optimum dosage schedule appears to be 0.4 Gm. per day, in divided doses initially, and after the symptoms are controlled or the basal metabolic rate is within the normal range the dose should be reduced to 0.1 or 0.2 Gm. per day. More information is needed on the effectiveness of lower doses.
5. On the basis of the available information, it can be recommended only that thiouracil be used for preoperative treatment or for those patients for whom operation is contraindicated. The wisdom of depending on thiouracil as a substitute for operative procedure can be determined only by following the results of investigations carried on for longer periods.
6. Many patients, particularly those who have received previous iodine therapy, do not respond immediately to thiouracil therapy; hence medication should be continued for at least thirty days, or, for a patient to whom iodine has been administered, for sixty to one hundred days, before concluding that no response to thiouracil is possible.
7. Approximately 13 per cent of all cases can be expected to show some adverse reaction to thiouracil therapy.
8. The most frequent and severe complications of thiouracil therapy are granulocytopenia, leukopenia, drug fever and dermatitis. The appearance of jaundice, purpura and anemia has been reported and should be watched for and, if observed, calls for careful evaluation of the clinical condition of the patient before thiouracil therapy is resumed.
9. Granulocytopenia occurs in about 2.5 per cent of cases and is the most serious complication of thiouracil therapy. This reaction tends to occur in the early weeks of treatment, and 80 per cent of the cases were seen by the twelfth week of therapy. No relationship to the dose of thiouracil was apparent. Treatment of this complication should consist of massive doses of penicillin (500,000 units per day).
10. Leukopenia had an incidence of 4.4 per cent, seen early in treatment, 75 per cent occurring in the first eight weeks but not related to dosage. More information is needed on the relationship between leukopenia and granulocytopenia.
11. Drug fever had an incidence of 2.7 per cent, seen very early in treatment, 85 per cent occurring in the first four weeks but not related to dosage. Reactions occurring early tended to be more severe than those occurring late in treatment.
12. Skin reactions had an incidence of 3.3 per cent. Urticaria was the most common, but a wide variety of other dermatoses were seen. None were deemed serious, but caution is advised in continuing therapy in the presence of these complications.
13. Three fourths of the investigators were of the opinion that the incidence of adverse reactions of thiouracil was less than the incidence of complications from present methods of treatment.
14. It should be emphasized that patients receiving thiouracil therapy should be carefully watched, especially during the first twelve weeks of therapy. Patients should be instructed to report immediately to their physician if any adverse symptoms such as sore throat, fever, coryza or malaise are experienced.
15. Since the mild and the juvenile types of hyperthyroidism can frequently be controlled adequately by iodine therapy alone, thiouracil should not be used for these patients unless the safer form of therapy proves ineffective.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 355).

The following article has now been accepted:

Holland-Rantos Co., Inc., New York

U. S. trademark 213,756.

Koromex Jelly: A water soluble jelly formed from tragacanth and gum acacia having a p_H of 4.6, prepared from the formula:

	Per Cent
Boric acid	2.0
Oxyquinoline benzoate	0.02
Phenylmercuric acetate	0.02
Glycerin	10.0
Gum acacia	0.6
Tragacanth	2.5
Perfume	0.015
Butyl parahydroxybenzoate as preservative	0.02
Water	100

Actions and Uses.—See article Contraceptive Jellies and Creams.

Dosage.—5 cc.

SYRINGE APPLICATORS FOR CONTRACEPTIVE JELLIES AND CREAMS (See New and Nonofficial Remedies, 1945, p. 357).

The following article has been accepted:

Holland-Rantos Co., Inc., New York

Koromex Vaginal Applicator: A transparent plastic tube threaded at the blunt, intravaginal end, to screw onto tubes of Koromex Jelly to permit filling by compression of the tube. The full capacity is 5 cc., the recommended dose.

ACETARSONE (See New and Nonofficial Remedies, 1945, p. 235).

The following dosage form has been accepted:

Allen Laboratories, Inc., Palmer, Mass.

Allen Brand Tampon with Acetarsone (Stovarsol): A lightly compressed stitched tampon of absorbent cotton, coated with 0.1 Gm. of powdered acetarsone, to which is attached a tablet consisting of acetarsone 32 mg. in a tablet base composed of lactose, dextrose, boric acid and starch with a small quantity of sodium bicarbonate and tartaric acid to aid disintegration.

Actions and Uses.—(See article on Acetarsone.)

Dosage.—Intravaginally, one tampon tablet every other day or daily, followed by a mildly acid douche after a third treatment or after a week's treatment, has been reported to give satisfactory results.

THIAMINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1945, p. 610).

The following dosage form has been accepted:

Frederick Stearns & Co., Detroit

Tablets Thiamine Hydrochloride: 3 mg.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 9, 1946

NONTUBERCULOUS PULMONARY CALCIFICATION

Although pulmonary calcification has been generally interpreted as evidence of healed tuberculosis, we recognize now that this disease is not the only important cause of such lesions. Recent epidemiologic studies have shown that a large proportion of persons with pulmonary calcification have negative tuberculin reactions. Lumsden and his associates[1] concluded, after a careful epidemiologic study of Coffee County in southwestern Alabama and Giles County in south central Tennessee, that skin testing with any of the tuberculosis preparations available, as a sole means of establishing an epidemiologic index or rate of incidence of tuberculous infection in a community or in a region, is of doubtful value or definitely futile. Smith[2] suggested that the area of high prevalence of pulmonary calcification and tuberculin negative reactors corresponds with the endemic area of histoplasmosis. Palmer[3] found in a study in which 3,000 nurses in Detroit, Kansas City, Minneapolis and Philadelphia were given intradermal tuberculin and histoplasmin tests and chest roentgenograms that (*a*) mild, probably subclinical, infection with Histoplasma capsulatum (or an immunologically related organism) is widely prevalent in certain states and relatively infrequent in others; (*b*) in general those states in which the frequency of reactions to histoplasmin is high are those in which pulmonary calcification is also high and (*c*) a high proportion of the pulmonary calcifications observed in roentgenograms of tuberculin negative persons is due not to tuberculosis but probably to histoplasmosis.

Christie and Peterson[4] studied a group of 181 children from a children's home in Williamson County, Tenn. Forty-five, or 24.9 per cent, of these reacted to tuberculin; 133, or 73.5 per cent, reacted to histoplasmin, and 79, or 43.6 per cent, had pulmonary lesions interpreted as calcifications. Almost twice as many children had calcification as were tuberculin positive. Positive reactions to histoplasmin were three times as common as positive reactions to tuberculin. Among the youngest group, 41.7 per cent of those under 5 years gave positive reactions to histoplasmin. None of the children under 5 years of age reacted positively to 0.1 mg. of tuberculin. The reactivity to histoplasmin occurred at an earlier age than the appearance of calcium in the lungs or reactivity to tuberculin. Apparently pulmonary calcification occurs less commonly in relation to tuberculin sensitivity than in relation to histoplasmin sensitivity. Of the 78 children with pulmonary calcification 25, or 32 per cent, reacted to 1 mg. or less of tuberculin. There were 53 children who did not react to tuberculin, more than twice as many as did react. Of the whole group 68, or 87.2 per cent, reacted to histoplasmin.

The studies by Gass and his associates and by Lumsden and his associates showed that there is a much greater prevalence of this phenomenon of pulmonary calcification in persons who are not sensitized to tuberculin in the area of the eastern slope of the Mississippi River basin and the adjacent states of the western slope south of Iowa than in the rest of this country. In this general area the overall prevalence of pulmonary calcification varied from 27 per cent in Ohio to 83 per cent in Tennessee. Of these calcified lesions only from 10 to 50 per cent were explainable on the basis of tuberculin sensitivity. Twenty-four to 45 per cent of the children showed pulmonary calcification without tuberculin allergy.

The observations of Gass and his associates[5] on the development of pulmonary calcification while the children were under observation, and its occurrence without showing tuberculin sensitivity during that period, is highly significant. It seems incredible that tuberculin sensitivity could develop and disappear in periods as short as two years. This observation offered the first substantial evidence that some infection other than tuberculosis might be the cause of this widespread unexplained calcification.

These observations, considered together with certain known facts regarding the distribution of fatal cases of histoplasmosis, suggest the possible etiologic relationship between nontuberculous benign pulmonary calcifications and a benign form of histoplasmosis. The conclusions depend largely on determination of the specificity of the histoplasmin reaction, for which only indirect evidence has been presented. With antigens derived from fungi, there is a possibility of crossed immunologic response to coccidioidin and an antigen derived from Haplosporangium.

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[1] Lumsden, L. L.; Dearing, W. P., and Brown, R. A.: Questionable Value of Skin Testing as a Means of Establishing an Epidemiologic Index of Tuberculous Infection, Am. J. Pub. Health **29:** 25 (Jan.) 1939.

[2] Smith, C. E.: Coccidioidomycosis, M. Clin. North America, May 1945, p. 790.

[3] Palmer, C. E.: Nontuberculous Pulmonary Calcification and Sensitivity to Histoplasmin, Pub. Health Rep. **60:** 513 (May 11) 1945.

[4] Christie, Amos, and Peterson, J. C.: Pulmonary Calcification in Negative Reactors to Tuberculin, Am. J. Pub. Health **35:** 1131 (Nov.)

[5] Gass, R. S., and others: Pulmonary Calcification and Tuberculin Sensitivity Among Children in Williamson County, Tenn., Am. Rev. Tuberc. **47:** 379 (April) 1943.

BIOLOGIC WARFARE

Biologic warfare was a potential menace throughout World War II. Biologic warfare is defined as the use of bacteria, fungi, viruses, rickettsias and toxic agents from living organisms to produce death or disease in men, animals or plants. Between World War I and World War II many came to believe that this type of warfare was possible. Late in 1941 the National Academy of Sciences was requested to survey the current situation and future possibilities. Following a period of development, under the administration of War Research Service, the main responsibility for the program was carried by the Chemical Warfare Service of the Army; at the peak nearly 3,900 persons were devoted to this work, including nearly 1,000 Navy personnel and nearly 100 civilians. The parent installation was Camp Detrick, at Frederick, Md., and there were other facilities in Mississippi, Indiana and Utah.

As a result of these efforts adequate defenses against a potentially dangerous method of warfare were devised, and the possibility of surprise was forestalled. Apart from the military objectives much information of great value for human welfare was obtained. Unique facilities were established for research and experimentation on pathogenic agents on a scale never before possible.

Of the more important accomplishments of especial medical interest were (*a*) development of methods for the rapid and accurate detection of minute quantities of disease producing agents, (*b*) significant contributions to knowledge of the control of airborne disease producing agents, (*c*) production and isolation, for the first time, of a crystalline bacterial toxin, which has opened the way for the preparation of a more highly purified immunizing toxoid, (*d*) development and production of an effective toxoid in sufficient quantities to protect large scale operations should this be necessary, (*e*) significant contributions to knowledge concerning the development of immunity in human beings and animals against certain infectious diseases and (*f*) important advances in the treatment of certain infectious diseases of human beings and animals, and in the development of effective protective clothing and equipment. Steps are being taken to permit the release of such technical papers and reports as may be published without endangering the national security.

Unlike the development of the atomic bomb and other secret weapons during the war, the development of agents for biologic warfare is possible in many countries, large and small, without vast expenditures of money or the construction of huge production facilities. Preparations for biologic warfare could proceed in many countries, perhaps under the guise of legitimate medical or bacteriologic research. For these reasons, supported by the fact that both Germany and Japan are known to have been engaged in activities looking toward biologic warfare, it seems imperative to continue investigations in this field on a scale sufficient to provide an adequate defense. Moreover, new benefits to medicine may be anticipated.

THE OFFICE OF CORONER

The dubious distinction of having created the institution of the coroner is oftenest accredited to Alfred, surnamed The Great, king of the West Saxons. The original coroner watched for the emoluments accruing to the crown in peculiar circumstances; he inquired into wrecks at sea and secured the flotsam to England, looked into all treasure trove and investigated unusual deaths that the exchequer might not be deprived of the forfeiture of felons. The office of coroner was therefore that of a scavenger; unfortunately an occasional coroner today seems to function in a similar manner.

Sixty-nine years ago the legislature of the state of Massachusetts abolished the office of coroner and substituted a system of medical examiners. The legislative act was prompted by public outcries following inefficient investigation of a peculiarly atrocious crime. In 1915, after prolonged investigation by the commissioner of accounts, the city of New York also abolished the coroner's system and adopted that of the medical examiner. The county of Essex in New Jersey followed.

Wherever the coroner exists in this country his privileges are exceedingly elastic. He may issue subpenas, empanel juries and administer the oath to jurors in order to prosecute inquiry into sudden, violent or suspicious death, no matter how staggering the attendant technical problems may be. He may make or direct postmortem examinations, conduct or institute chemical, bacteriologic and microscopic investigations and, in short, perform the offices of a pathologist. The extent to which the city of New York had previously made provision for the fulfilment of the scientific and quasi-judicial duties of the coroner is indicated by the fact that the post was occupied at various times by a bricklayer, a shoemaker, a carpenter, a stone mason, a plumber, a butcher and an undertaker. The medical responsibilities of the office were delegated to physicians distinguished, with a solitary exception, by political preferment rather than by scientific ability.

The successful conduct of the medical examiner's office is not necessarily limited to thickly populated districts. In the vast territorial expanse covered by the Royal Mounted Police the office of medical examiner, fashioned after the New York City system, functions admirably. In most parts of the United States the office of the coroner continues to exist. Is it not time that our governments modernized their procedures by eliminating this ancient and far too often dishonorable office?

INCOME TAX CREDIT FOR CHARITY PRACTICE OF PHYSICIANS

The value of the services rendered annually by physicians of this country in the treatment of the indigent sick for which they receive no compensation has been estimated as in excess of $300,000,000. Recognition of this tremendous contribution made by physicians for the public good is reflected in a bill, H. R. 5296, introduced in the Congress January 30 by Representative Clare Boothe Luce of Connecticut. The measure provides that physicians, surgeons and dentists, commencing with the taxable year 1946, shall be allowed an additional credit as a deduction on their income tax equal in terms of percentages to that portion of their time each year which is devoted to charity, free clinic work and public research work. The Commissioner of Internal Revenue will prescribe by regulation, it is contemplated, the method of computing such time and the proof which shall be required in substantiation.

At the time the bill was introduced, Representative Luce had inserted in the *Congressional Record* a statement embodying the justification for her sponsorship of this legislation. In connection with the many proposals being made for various kinds of governmental control of medicine, she said:

> None of these proposals is a logical development of the American system of recognizing, promoting and rewarding individual choice and achievement. In our earlier history pioneer medicos were rewarded for their frequently ill paid devotion by a very special place in the community, high respect from their fellow citizens and patients, and payment in lovingly prepared delicacies where cash was scarce. Those times have largely vanished. To become a doctor, a surgeon, a dentist now requires some eight or nine years of unremunerative and expensive schooling. Until he has completed all this, usually by the time he is 29 or 30, the doctor cannot even begin to earn his own bread and salt, much less begin to repay himself for the costs of learning his profession.

After referring to the fact that all reputable physicians give a considerable portion of their time to the treatment of patients who are unable to pay for the services in any way except by gratitude, the statement continues:

> Surveys as to the amount of these unpaid services indicate that the percentages range from around 30 to 45 of all treatments given. This is a direct contribution on the part of the physician, surgeon or dentist to the public welfare. In addition are the hours spent without pay in public research work, on hospital boards and on boards of charitable organizations. All this must be chalked up to professional devotion, since it results in no return and often requires the practitioner to lengthen his working day to fifteen or sixteen hours or more in times of epidemic. There are no limits possible on a doctor's working day.

Because of the facts so well set forth in her statement, Representative Luce believes that the recognition contemplated by her bill is fully justified. This measure is pending before the House Committee on Ways and Means, where, it may be assumed, it will be given consideration by the committee in connection with its program to revise the income tax law.

Current Comment

COMBINED FEVER-PENICILLIN THERAPY

In 1944 Eagle and his associates[1] of Johns Hopkins Hospital showed that the spirocheticidal action of penicillin increases with the temperature in the range 8-40 C. Using five different strains of spirochetes, they found that the percentage of organisms surviving after twenty-four hours at 8, 22-23, 32-33, 36-37 and 39-40 C. was 100, 10, 1, 0.2 and 0.02 respectively. These results were independent of the concentration of penicillin in the range 0.25 to 250 units per cubic centimeter. In their opinion the difference between the results obtained at 37 C. and at 40 C. is sufficiently great to suggest the use of artificially induced fever in conjunction with penicillin in the treatment of syphilis. They believed that such a combined therapy might make it possible to reduce the total dosage, shorten the duration of treatment or do both. Similar effects of hyperthermia on the bactericidal action of penicillin were subsequently reported by Lee and Foley[2] of the Wallace Laboratories, New Brunswick, N. J. In a typical experiment they showed that at 37 C. 1.5 units of penicillin per cubic centimeter of rabbit serum reduced the viable percentage of Staphylococcus aureus 75 per cent by the end of four hours. At 39 C. the viable count was reduced by 83 per cent and at 42 C. by 96 per cent. In control tests without penicillin there was as much as a four hundredfold increase in the bacterial count by the end of the same period. While Lee does not formally recommend combined fever and penicillin therapy in staphylococcic infections, such a combination would be a logical application of his data.

COOPERATIVE STUDIES ON THIOURACIL

Elsewhere in The Journal (pages 315 and 343) are two clinical communications on the results of cooperative studies on the toxicity of thiouracil, a new drug for the treatment of thyrotoxicosis. The studies should clearly define the toxicity of this drug, which is now available in interstate commerce. Only by careful use can thiouracil be expected to serve beneficially in modern chemotherapy. Moore's report offers the joint experience of eleven clinics in the United States and one in England; it is not intended as an appraisal of the usefulness of thiouracil. The statement by Van Winkle and his associates is the result of information gathered by questionnaire by six drug manufacturers interested in the distribution of thiouracil. This statement has been submitted as a report to the Council on Pharmacy and Chemistry and presents a new and commendable peak in cooperation. Both papers are excellent examples of the value of pooling information and should serve as guides for the future when other new drugs appear on the medical horizon under a cloud of uncertainty.

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[1] Eagle, Harry, and Musselman, Arlyne D.: J. Exper. Med. **80**: 493 (Dec.) 1944.

[2] Lee, S. W., and Foley, E. J.: Proc. Soc. Exper. Biol. & Med. **60**: 133 (Oct.) 1945.

MEDICINE AND THE WAR

ARMY

GENERAL KIRK AWARDS FIVE OFFICERS LEGION OF MERIT

Five Legion of Merit Awards were recently presented by Major Gen. Norman T. Kirk, Surgeon General of the Army, to Col. James E. Ash, director of the Army Medical Museum; Lieut. Col. Fred J. Fielding, chief of Classification of Records Section, Military Personnel Division; Lieut. Col. Michael E. DeBakey, chief of General Surgery Branch, Surgical Consultants Division; Lieut. Col. Oliver R. McCoy, director of Tropical Disease Control Division, Preventive Medicine Service, and Major Robert L. Kaye, Corps of Engineers, commanding officer of Cinchona Research Unit.

As director of the Army Medical Museum, the citation stated, Colonel Ash "organized the most extensive tissue pathology service ever known to the world. The photographic and art service of the museum was developed, which amassed a wealth of visual material—over 40,000 black and white photographs, over 4,000 kodachromes, and over 50,000 feet of colored movies."

Lieutenant Colonel Fielding "effected the assignment and equitable distribution of medical skills. Under his guidance the entire personnel records system was coordinated and integrated to the end that available professional abilities were utilized to the maximum degree."

Lieutenant Colonel DeBakey "conceived and initiated the monthly *Bulletin of the United States Army Medical Department,* which furnished physicians all over the world with authoritative information on advances in medicine.

In the field of malaria treatment and control Lieutenant Colonel McCoy "fostered activity in the dissemination of knowledge pertinent to tropical disease control, both in professional circles and among troops," thus maintaining their health while operating in overseas areas. His "outstanding achievements in bringing into being a means of production of quinine and related antimalarials signify a magnificent contribution to mankind."

AWARDED DISTINGUISHED SERVICE MEDAL

Col. Tracy S. Voorhees, formerly a New York attorney and president of the Long Island College Hospital, Brooklyn, was recently awarded the Distinguished Service Medal for outstanding accomplishment while serving in the Office of the Surgeon General as director of the legal division and later as director of the control division. Colonel Voorhees is now on duty as assistant to the Secretary of War in the handling of matters affecting the medical department, with particular reference to the care of the sick and wounded and the demobilization of medical personnel.

HEALTH OF SOLDIERS IN PACIFIC AREAS REPORTED GOOD

Brig. Gen. Raymond W. Bliss, Deputy Surgeon General of the Army, in a report of his recent tour of Pacific theaters, stated that American soldiers in the Pacific are an exceptionally healthy body of troops despite the fact that many of them are located in the most disease ridden areas in the world.

The low disease rate among American forces in those areas is the result of the program of preventive medicine, involving the expenditure of millions of dollars, which the Surgeon General's Office inaugurated to guard the welfare of this country's fighting forces. To accomplish these results the Army Medical Department took the initiative in organizing an all out attack against disease. The cooperation of the best civilian and military tropical medicine experts in the country was enlisted, special courses were organized to teach army doctors how to care for troops exposed to these strange diseases, and a campaign of education in hygiene and field sanitation was inaugurated among the soldiers. Protective clothing, new repellents and insecticides, including DDT and drugs such as atabrine, penicillin and the sulfonamides, all played a part in this effective program.

The purpose of the trip was the study of medical service in the Pacific, demobilization of medical department personnel and the adoption of plans for the permanent hospitalization and evacuation of the army of occupation.

APPOINTED PLASTIC SURGERY CONSULTANT

Col. James B. Brown, chief of plastic surgery at Valley Forge General Hospital, Phoenixville, Pa., was recently appointed senior consultant in plastic surgery to the Surgeon General.

ARMY AWARDS AND COMMENDATIONS

Lieutenant Colonel Franklin C. McLean

Lieut. Col. Franklin C. McLean, now professor of pathologic physiology at the University of Chicago, who served during the war in the Chemical Warfare Service of the United States Army, was recently awarded the Legion of Merit. Dr. McLean, who was director of toxicology for the Chemical Warfare Service from October 1943 to March 1944, received the citation for his demonstration of remarkable talents and scientific versatility in laboratory and field testing and in improving the effectiveness of persistent blister and other gases. In addition to his work at Edgewood Arsenal Dr. McLean was chief of the Persistent Section of the San Jose Project in Panama. The citation was conferred also for his work as a member of the British-American coordination staff from June 1944 to September 1945, in which he was a factor in evaluating the biologic aspects of all research and testing of gas warfare equipment performed by the United States and the British commonwealth. Previous to receiving his commission as lieutenant colonel Dr. McLean was director of the toxicity laboratory of the University of Chicago and resumed his duties there as professor of pathologic physiology on Oct. 1, 1945.

Lieutenant Colonel Morton H. Flaherty

The Army Commendation Ribbon was recently awarded to Lieut. Col. Morton H. Flaherty, White Plains, N. Y., for meritorious service as assistant to the surgeon and as surgeon, Eastern Defense Command, with Headquarters at Governors Island, N. Y., from Jan. 8, 1943 to Dec. 31, 1945. "Through his experience, professional ability, keen analytical mind and conscientious effort," says the citation, "he was of very material assistance in the maintenance of adequate hospitalization and medical service for units of this command. He is to be particularly commended for his efforts in maintaining an exceptionally low rate for contagious diseases in this command in spite of rigorous climatic conditions and isolated facilities." Dr. Flaherty graduated from Columbia University College of Physicians and Surgeons, New York, in 1935 and entered the service May 15, 1941.

Major William Clinton Calvert

The Soldier's Medal was recently awarded to Major William C. Calvert, West Orange, N. J., "for heroism near Antwerp, Belgium, on Feb. 23, 1945. When a flying bomb landed in a village near his headquarters Major Calvert with three enlisted men immediately went to the scene to administer medical aid. On arriving they discovered that a child was trapped in the wreckage of a house Completely disregarding his own safety, Major Calvert crawled into the cellar despite the danger from an overhanging mass of cement and steadily rising water from a broken main and held the child's head above water for nearly three hours until she could be removed to safety Major Calvert's coolness, courage and devotion to duty reflect the highest credit on himself and the Army of the United States" Dr Calvert graduated from New York Medical College, Flower and Fifth Avenue Hospitals, New York, in 1929 and entered the service July 18, 1942

Captain William S M. Ling

An Oak Leaf Cluster to the Bronze Star was recently awarded to Capt William S M Ling, New York, "for meritorious achievement in connection with military operations in Italy from Jan 15 to April 9, 1944 As battalion surgeon of the 751st Tank Battalion Captain Ling displayed outstanding courage and exceptional professional ability during the preparation, the actual landing and subsequent action of the battalion at the Anzio beachhead Owing to the special situation it was necessary for men to remain in their tanks for days at a time and without relief This made it very difficult on crewmen, and many of the men began to complain of claustrophobia, or that the tanks seemed to be closing in on them It was due to Captain Ling's personal attention to these men that many of them remained on duty and were not sent back to rear areas as battlefield exhaustion cases He was untiring in his efforts and demonstrated a vast knowledge of his medical profession in fearlessly proceeding under intense fire to treat men who had been wounded and needed his care" Dr Ling graduated from the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, in 1940 and entered the service Sept 1, 1941

Captain Robert Boyd Stith

The Bronze Star was recently awarded to Capt Robert Stith of Florence, S C, for meritorious services in support of combat operations from Nov 9, 1942 to May 2, 1945 in North Africa and Italy "As assistant chief of the medical division in an evacuation hospital," reads the citation, "Captain Stith rendered outstanding service of the skilled care and treatment of thousands of patients working under severe conditions of weather and enemy action By his diligent performance he provided a constant inspiration and example to the officers, nurses and men working under him In charge of the preoperative ward on the Anzio beachhead, Captain Stith calmly and skilfully performed his duties during periods of enemy shell fire and by his conduct influenced attainments, persevering efforts and devotion to duty Captain Stith contributed immeasurably to the success of his unit's medical mission" Dr Stith graduated from Duke University School of Medicine in 1935 and entered the service April 15, 1942

Lieutenant Colonel Weldon J. Walker

Lieut Col Weldon J Walker, formerly of Los Angeles, was recently awarded the Bronze Star "for meritorious service in connection with military operations against the enemy in Germany between April 3, 1945 and May 8, 1945 Lieutenant Colonel Walker, commanding officer, exerted constant and untiring effort to render superior medical service to units of the 3d Corps Dangerous reconnaissances made personally, at a time when the front lines were in a fluid condition, enabled him to maintain liaison with these supported organizations His initiative, diligence, sense of responsibility and considered judgment reflect credit on himself and the Army" Dr Walker graduated from the College of Medical Evangelists, Los Angeles, in 1940 and entered the service July 12, 1941

NAVY

BIOLOGIC WARFARE STUDIED BY THE NAVY

For two and a half years a Navy project was secretly undertaken at the University of California, Berkeley, of joint Army Navy and civilian cooperative research in the field of biologic warfare, which was not announced until recently by the Navy Department The group was composed of twelve officers and nine enlisted men when the project was undertaken in April 1943 under the command of Capt Albert Paul Krueger (MC), U S N R, but increased to nineteen officers and forty-five men by VJ day

Much must still remain untold, but after thirty-three months of hazardous and painstaking study it may now be revealed that

1 Considerable knowledge has been gained in mass defense against possible enemy employment of a certain disease which is highly fatal

2 Laboratory and field data have been gathered which demonstrate that a man-made epidemic as an instrument of war is a likely possibility

3 A protective suit, with self-contained oxygen supply, has been devised for the use of workers in any prospective rescue or decontamination operation

4 Conclusive information has been obtained which would be of great value not only for protection from bacterial attack but for control of communicable airborne diseases among a peacetime population

The disease in question, the identity of which must still be withheld, is centuries old, it is said, and one of the greatest of killers Captain Krueger stated that the "program was undertaken not from the standpoint of academic research but with a view of obtaining short term practical results with regard to offensive possibilities and defensive countermeasures"

The precautionary measures taken during the study were so efficient that no infections due to the organisms studied occurred among the investigators The work of this group, known as Naval Medical Research Unit No 1, is continuing, coordinated by the Bureau of Medicine and Surgery with the Army Navy biologic warfare program

VICE ADMIRAL McINTIRE AWARDED DISTINGUISHED SERVICE MEDAL

The Distinguished Service Medal was recently awarded to Vice Admiral Ross T McIntire, Chief of the Bureau of Medicine and Surgery since Dec 1, 1938 and Surgeon General of the Navy He was cited for his extraordinary ability in planning and applying the medical program for the Navy and Marine Corps, the citation emphasizing his "exceptionally meritorious service to the government of the United States in a duty of great responsibility as chief of the Bureau of Medicine and Surgery and Surgeon General of the Navy from Dec 7, 1941 to Aug 31, 1945 Displaying extraordinary foresight, unerring judgment and great administrative ability, Vice Admiral McIntire directed the planning and the practical application of the vast program which provided medical care and supply for the Navy and the Marine Corps on a scale and with a degree of success unprecedented in naval warfare His outstanding achievement had a direct and vital part in the successful prosecution of the war' Vice Admiral McIntire has also received decorations from Belgium, Brazil, Denmark France, French Morocco Luxembourg Nicaragua Norway, Poland and Sweden

NAVY AWARDS AND COMMENDATIONS

Commander Murray W Ballenger

Comdr Murray W Ballenger Medical Department, Naval Air Station, Pensacola, Fla, was recently awarded the Bronze Star The award was made for his efforts following damage to his ship which resulted in a number of casualties He worked tirelessly for many hours treating the wounded "By his high professional skill,' the citation reads, 'he undoubtedly saved many lives His outstanding conduct throughout has distinguished him among those performing duties of the same character Dr Ballenger graduated from the University of Kansas School of Medicine, Kansas City, in 1935 and entered the service Jan 11, 1937.

Lieutenant Commander Howard Owen Smith

Lieut. Comdr. Howard Owen Smith, formerly of Marlin, Texas, was recently commended "for meritorious service in the line of his profession as a gastrointestinal and general surgeon aboard a United States Navy hospital ship from August 1944 to May 1945. During this period Lieutenant Commander Smith displayed unusual zeal in his devotion to duty and exhibited physical endurance and fortitude to an inspiring degree. His outstanding skill, knowledge and ability were materially responsible for the alleviation of pain and suffering and were instrumental in saving the lives of many men who otherwise would have died of shock or other disabling conditions. His conduct throughout was in keeping with the highest traditions of the United States Naval Service." Dr. Smith graduated from the University of Texas Medical Branch, Galveston, in 1922 and entered the service Nov. 26, 1942.

Captain Millard F. Hudson

A Letter of Commendation was recently presented to Capt. Millard F. Hudson, formerly of San Pedro, Calif., "for meritorious service as Atlantic Fleet Medical Officer on the staff of Commander Service Force, Atlantic Fleet, from June 1942 until November 1945." The citation accompanying the award stated that "Captain Hudson administered the medical affairs of the Atlantic Fleet and fulfilled the multitudinous responsibilities of his assignment with outstanding efficiency and skill. He directed and detailed assignments of all Hospital Corps enlisted personnel to the forces afloat and at outlying bases. By personal consultation, by visitation and by the preparation of many technical bulletins he materially contributed to the operational readiness of all fleet medical units to meet demands of battle. Captain Hudson's professional skill and outstanding performance of duty in a position of great responsibility reflect great credit on himself and the United States Naval Service." Dr. Hudson graduated from Vanderbilt University School of Medicine, Nashville, Tenn., in 1917 and entered the service Dec. 29, 1917.

Commodore Morton D. Willcutts

For his services as fleet medical officer on the staff of Commander, Fifth Fleet, Commodore Morton D. Willcutts, formerly of New York, was awarded the Legion of Merit. The citation accompanying the award stated that it was given "for exceptionally meritorious conduct in the performance of outstanding service as fleet medical officer on the staff of Commander, Fifth Fleet, from April to November 1945. During this period he participated in the amphibious operations to capture and occupy Okinawa and in the occupation of Japan. Commodore Willcutts with great diligence applied himself to the solution of medical problems incident to fleet operations, the handling of casualties and the health of personnel taking part. His sound judgment and excellent vision contributed to the success of these operations. When the fleet flagship was hit by a suicide plane with a bomb on May 12, with heavy casualties resulting, he took charge of the wounded on the main deck in the absence of the ship's medical officers, who were below at their battle stations. His promptness, presence of mind and professional skill were of great value on this occasion. His conduct was at all times in keeping with the highest traditions of the United States Naval Service." Dr. Willcutts graduated from the Indiana University School of Medicine, Indianapolis, in 1916 and entered the service Sept. 4, 1917.

MISCELLANEOUS

SELECTIVE SERVICE MEDAL

A letter addressed to The Journal *by Dr. E. D. Skeen of Gary, Ind., called attention to the fact that many members of draft boards from Gary have been called to Indianapolis to receive from the state director of Selective Service a certificate and a medal indicating their contribution but that the list published did not include the names of any physicians. A letter was addressed to Major Gen. Lewis B. Hershey, director of the Selective Service System, whose reply follows:*

Dear Doctor Fishbein:—I have received your letter dated Jan. 24, 1946, in which you quote a statement you have received from one of your subscribers in regard to the award of the Selective Service Medal to local board examining dentists and physicians.

Public Law 112, 79th Congress, approved July 2, 1945, provides that the Selective Service Medal and Certificate may be awarded to members of local boards, members of appeal boards, government appeal agents, local board examining dentists and physicians, members of medical advisory boards and reemployment committeemen who have completed more than two years of loyal and faithful service and to such others as may be selected by the director of Selective Service.

Under the procedure for the award of the medal, local board members, appeal board members and government appeal agents must be recommended by the state director of Selective Service. Other persons eligible for the award, including local board examining physicians, must be recommended by the appropriate local board and the state director.

Owing to production difficulties, it has not been possible to obtain sufficient medals, presentation boxes and certificates of merit to make the award to all eligible persons at the same time. For that reason the first awards are being made to local board members, appeal board members and government appeal agents.

In certain of the states the lists of eligible persons who are to be recommended by the local boards were not received in sufficient time to complete the printing of names on certificates. Approximately 35,000 certificates are in the process of printing at the present time. As soon as a sufficient supply of medals and certificates is received from the contractors, the awards will be made to all qualified persons.

The examining dentists and physicians who so patriotically served our local boards will not be ignored. It is merely a question of obtaining the medals and certificates for presentation. It is hoped that we will have the medals and certificates to make the awards during the latter part of February or the first of March.

Lewis B. Hershey, *Director,*
Washington, D. C.

OFFICERS RELEASED FROM U. S. PUBLIC HEALTH SERVICE

A letter from Surgeon General Thomas Parran reveals that there were at the end of hostilities approximately 1,050 reserve medical officers on active duty with the United States Public Health Service. About 275 of these officers have been released to date. The releases are being made in accordance with a point system previously published in The Journal. Officers with 45 or more points are being released during the months of January and February. Surgeon General Parran states that it is expected that the critical score will be reduced on March 1 but that it is not possible at this time to state the extent of the reduction.

DISABLED PERSONS ASSOCIATION OF AMERICA

The Disabled Persons Association of America, Chicago, a nonpartisan and nonsectarian association, incorporated not for profit, recently announced an exclusive free selective placement service for disabled veterans. The Veterans Division has office and factory jobs available for disabled veterans, as well as some out of town jobs. Full cooperation with any and all veterans' organizations and other agencies will be given, and a request is made to the public to refer any disabled veterans in need of employment or counsel to Capt. A. L. Myers any day of the week between the hours of 9 a. m. and 1 p. m. at suite 1408, 39 South State Street, Chicago.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Anderson, William O., Capt., Halcyville.
Bradford, Duke C., Col., 3121 12th Ave. N., Birmingham.
Britt, Walter S., Capt., 220 Cherry St., Eufaula.
Bryant, Henry C., Capt., 431 12th Terrace N., Birmingham.
Cobb, John M., Lt. Col., Tuskegee.
Darden, William H., Lt. Col., 2112 Noble St., Anniston.
Kendrick, James E. Jr, Lt. Col., 310 S. Park St., Greenville.
Martin, Carl T., Capt., Abbeville.
Mason, Robert E., Capt., 3802 Cliff Rd., Birmingham.
Monsky, David B., Major, 111 Ponce de Leon, Montgomery.
Motley, Jewett P., Capt., 2746 20th St., Ensley.
Parker, Paul H., Major, Margaret.
Peters, Jesse J., Major, Veterans Adm., Tuskegee.
Rowe, Mason C. Jr., Capt., 1203 Catalpa St., Dothan.
Samples, Leon D. Jr., 1st Lt., 425 12th Ave. N., Birmingham.
Shiffman, Hans P., Capt., DMD, SH, Napier Fld., Dothan.
Sparks, Thomas P., Capt., Box 325, Sylacauga.
Treherne, Alfred J., Lt. Col., Box 398, Atmore.

Arkansas

Binns, Byron Z., Major, Monticello.
Crocker, Elvis W., Capt., 1103 Porter St., Helena.
Crow, Marvin B., Capt., Warren.
Dew, Hogan A. Jr., Capt., Hamburg.
Fowler, Hollace D., Major, 412 Rosette, Little Rock.
Gaston, Cecil L. Jr., Major, Trinity Hosp., Little Rock.
Hundley, Louis K., Major, P. O. Box 439, Fayetteville.
Johnston, W. W., Major, Phillips City Health Unit, Helena.
Kay, Royal H., Capt., Cotton Belt Hosp., Texarkana.
Kirkham, Dunham, Major, 220 W. 20th St., Little Rock.
Lutterloh, Charles H., Lt. Col., 29 Circle Dr., Hot Springs.
McLain, Monroe D., Major, 909 Main St., Little Rock.
Maddox, Alfred H., Major, Elaine.
Moulton, Everett C. Jr., Capt., 935 Adelaide Ave., Fort Smith.
Phipps, W. E., Capt., 401 Ridgeroad, Pk. Hill, N. Little Rock.
Ritchie, Elmer J., Major, 621 W. 4th St., North Little Rock.
Savage, Hugh W., Major, 317 Beach St., Little Rock.
Thompson, Albert W., 1st Lt., Bentonville.
Williams, Jacob M., Capt., Monette.

Colorado

Alexander, Harry A., Major, 750 Cascade Ave., Boulder.
Barber, Edgar W., Lt. Col., 227 16th St., Denver.
Beck, Harold J., Major, 615 W. 22d St., Pueblo.
Benell, Otto E., Major, 1700 13th Ave., Greeley.
Benov, Harry, Capt., 1101 Colorado Blvd., Denver.
Emery, George D., Capt., 672 Cherry St., Denver.
Girod, Frank P., 1st Lt., Cortez.
Hill, Kenneth A., Lt. Col., 335 S. Vine St., Denver.
Karlick, Joseph R., Capt., 1936 Pearl, Denver.
McGraw, John P., Lt. Col., Box 308, Estes Park.
Peterson, Arthur E., Capt., 1905 19th Ave., Greeley.
Pingrey, Fergus R., Capt., 1801 Main Ave., Durango.
Pollice, John A., Major, 4344 Bryant St., Denver.
Porter, Whitney C., Major, 4310 E. 25th Ave., Denver.
Robinson, George L., Capt., Salida.
Rounds, Roy C., Major, 1427 Franklin St., Denver.
Ruzicka, Lawrence J., Capt., 1120 S. Broadway, Denver.
Sawyer, Kenneth C., Major, 1819 Gilpin St., Denver.
Shaw, Dwight B., Lt. Col., 702 N. Main, Pueblo.
Shrout, Cecil B., Col., Vet. Adm., Ft. Lyon.
Shumsky, Nathan S., Capt., 2058 Ivanhoe St., Denver.
Spillane, John H. Jr., Major, 30 E. Platte, Colorado Springs.
Whitehouse, Alfred E. Jr., Capt., 700 E. Aspen, Fruita.

District of Columbia

Beard, William H., Lt. Col., 2814 Connecticut Ave., Washington.
Beardsley, L. G., Col., 2650 Wisconsin Ave. N.W., Washington.
Daue, Edwin O. Jr., 1st Lt., 1129 Fern St. N.W., Washington.
Friedman, J. M., Lt. Col., 3539 Holmead Pl. N.W., Washington.
Gibson, Frank E. Jr., Major, 927 Eye St., N.W., Washington.
Gladsden, Eugene S., Major, 922 C St. S.E., Washington.
Greene, Joseph L., Capt., 2518 Tunlaw Rd. N.W., Washington.
Jeffrey, Millard, Capt., 2800 Woodley Rd. N.W., Washington.
Lyons, John H., Col. 1644 21st St., N.W., Washington.
Meisenbach, A. E. Jr., Capt., 927 17th St., N.W., Washington.
Randall, Robert S., Capt., 1944 3d St. N.W., Washington.
Ratcliffe, Harold E., Major, St. Elizabeth's Hosp., Washington.
Pekin, Thomas J., Lt. Col., 2650 Wisconsin Ave., Washington.
Reeves, G. W., Capt., 2916 New Mexico N.W., Washington.
Sterling, Harold, 1st Lt., 4102 14th St. N.W., Washington.
Sugar, Samuel J., Major, Gallinger Mun. Hosp., Washington.

Florida

Annis, Leonard S., Lt. Col., Bayshore Royal Hotel, Tampa.
Baker, Archie J., Capt., 4035 N. Alhambra Dr., Jacksonville.
Ball, William H., Major, 1005 Morrison Ave., Tampa.
Barks, Orville L., Capt., Groveland.
Edwards, Joshua L., Capt., 806 W. Duval St., Lake City.
Fox, Edward F., Major, 404 Ingraham Bldg., Miami.
Helms, John S. Jr., Lt. Col., 3314 Lykes Ave., Tampa.
Hyman, Jack, 1st Lt., 6110 Interbay Blvd., Tampa.
Morton, Henry G., Capt., 1074 S. Citrus Ave., Sarasota.
O'Donnell, William G., Capt., 712 SW 7th St., Miami.
Overstreet, Ralph M. Jr., Capt., Jackson Mem. Hosp, Miami.
Palmer, George S., 1st Lt., Box 547, Tallahassee.
Parker, Martle F., Capt., Lisenby Hosp., Panama City.
Parks, Lorenzo L., Lt. Col., State Bd. of Health, Jacksonville.
Parsons, Hugh E., Capt., 512 Maas Office Bldg., Tampa.
Ralston, Raymond H., Major, 523 E. McDonald St., Lakeland.
Sigman, Murray D., Capt., 36 Rhode Ave., St. Augustine.
Stebbins, Alvin L., Major, 803 N. Palafox St., Pensacola.

Georgia

Abram, Lewis E., Major, 816 S. Lee, Fitzgerald.
Alsup, William B. Jr., Capt., University Hosp., Augusta.
Anderson, William H. Jr., Capt., Grady Hosp., Atlanta.
Armstrong, William B., Capt., 4270 Harris Trail, Atlanta.
Bailey, Thomas E., Capt., 1833 Starnes St., Augusta.
Berry, Robert L., Capt., Villa Rica.
Cary, Howard R., Major, Milledgeville.
Evans, Albert L., Capt., 518 Park Dr., N.E., Atlanta.
Golsan, Willard R., Lt. Col., 8A Massee Apts., Macon.
Harper, Sage, Major, Wray.
Hilsman, Joe H. Jr., Capt., 72 11th St., NE, Atlanta.
Hoffman, Byron J., Capt., 768 Juniper St. N.E., Atlanta.
Huskey, Aubrey L., Major, 703 Med. Arts Bldg., Atlanta.
Ketchum, Clarence W., Major, Grady Hospital, Atlanta.
Little, Gwynne H., Capt., 119 King St., Dalton.
Litton, James H., Lt. Col., Court House, Milledgeville.
McMillan, Carl B., Major, 3996 N. Ivy Rd., Atlanta.
Martin, Walter D., Capt., PO Box 219, Shellman.
Muse, Jesse P., 1st Lt., 740 Seiler Ave., Savannah.
Niles, George A. Jr., Capt., Grady Hosp., Atlanta.
Pomeroy, William L., Major, 1421 St. Mary's Dr., Waycross.
Powers, Leander K., Capt., Guyton.
Rich, Maurice, Capt., 938 Oakdale Rd., Atlanta.
Rubin, Jacob, Capt., 910 E. 35th St., Savannah.
Schaffer, William B., Lt. Col., Box 366, Toccoa.
Smith, Charles R., Capt., Terrell Co. Health Dept., Dawson.
Sturm, R. T., 1st Lt., 1302 W. Peachtree, Apt. 108, Atlanta.
Tighe, Leo R., Major, Vet. Adm. Facility, Augusta.
Weinberg, James I., Lt. Col., 949 Courtney Dr., NE, Atlanta.

Maine

Branson, Sidney R., Capt., Main St., South Windham.
Clapperton, Gilbert, Major, 20 Ware St., Lewiston.
Colley, Maynard B., Major, Wilton.
Comeau, Wilfred J., Lt. Col., 48 Penobscot St., Bangor.
Cox, William V., Lt. Col., 82 Gamage Ave., Auburn.
Dougherty, John F., Capt., 60 North St., Bath.
Eastman, Charles W., Major. 15 Millet St., Livermore Falls.
Feeley, John R., Capt., 3 3d St., Bangor.
Finks, Henry, Major, 286 State St., Portland.
Laney, Richard P., Major, Prospect St., Skowhegan.
Lenfest, Stanley R., Capt., Waldoboro.
Lombard, Reginald T., Lt. Col., 793 Main St., South Portland.
McManamy, Eugene P., Capt., Cottage Lane, Cape Cottage.
Metzgar, John G., Capt., 31 Grove St., Augusta.
Moore, Roland B., Col., RFD 3, Portland.
Morrison, Alvin A., Major, 165 Glenwood Ave., Portland.
Moulton, Albert W. Jr., Capt., 180 State St., Portland.
Richards, Carl E., Major, Box 81, Alfred.
Webber, Wedgwood P., Major, 376 Main St., Lewiston.

Mississippi

Cohen, Emanuel, Capt., Pace.
Holley, Robert L. Jr., Capt., U. of Miss. Hosp., University.
House, Nathaniel C., Major, Belzoni.
Hudgens, John C., Lt. Col., Vet. Adm. Facility, Gulfport.
Minter, David R., Lt. Col., Rochdale.
Sims, Murphy M., Capt., Health Unit, Oxford.
Sneed, Ralph, Major, Charity Hosp., Jackson.
Wiener, William B., Capt., Canton.
Wright, Frederick L., Lt. Col., Gulfport.

PHYSICIANS SEPARATED FROM SERVICE

Nebraska

Glenn, William V., Capt., 2007 Crook St., Falls City.
Greenslit, Frank S., Capt., 1690 Sioux St., Lincoln.
Haentzschel, Lester E., Lt. Col., 2401 Ryons St., Lincoln.
Himalstein, Milton R., Capt., 1523 1st Ave., Scottsbluff.
Holden, Walter J., Capt., Elkhorn.
Horwich, Joe M., Major, 1403 N. 33d St., Omaha.
Korth, Zeno N., Lt. Col., 3426 Webster, Omaha.
Kunkel, Lloyd N., Major, Weeping Water.
Lierman, Clifford E., Capt., 112 N. 38th Ave., Omaha.
Marx, Paul D., Lt. Col., 2543 B St., Lincoln.
Miller, Samuel D., 1st Lt., 5515 S. St., Lincoln.
Millett, Clinton C., Lt. Col., 5607 Leavenworth, Omaha.
Milligan, John O., Capt., 1818 S. 24th St., Lincoln.
Nye, Dan A., Capt., 1035 J St., Lincoln.
Rose, Forrest I., Capt., 4904 Davenport St., Omaha.
Strough, LaVern C., Capt., 1123 Ella St., Beatrice.
Waddell, William W., Major, 1701 S. 4th St., Beatrice.
Wolf, William K., Lt. Col., Hay Springs.

Nevada

Bagley, Richard O., 1st. Lt., 2025 I St., Sparks.
Dolezal, Joseph B., Capt., Battle Mountain.
Felder, Lin S., Capt., Winnemucca.

New Mexico

Beam, Mark P., Major, 1608 Park Ave., Albuquerque.
Bielinski, Henry E., Capt., P. O. Box 162, East Vaughn.
Hinkle, Warren I., Major, Vet. Adm. Facility, Albuquerque.
Hodde, Henry W., Capt., 303 E. Taylor, Hobbs.
Kaufman, B. H., Capt., 1077 Indian School Rd., Albuquerque.
Kempers, Bert, Major, 530, Lafayette Pl., Albuquerque.
Merriam, Sidney A., Major, RFD 4, Box 552, Albuquerque.
Rosenbaum, Myron G., Capt., 437 N. Maple St., Albuquerque.
Setzler, Robert K., 1st Lt., Shiprock.
Tritt, Earl F., Col., Jicarilla Apache Indian Reservation, Dulce.

North Carolina

Baum, Ralph E., Capt., Kitty Hawk.
Beyer, Emil C., Major, Box 3127, Duke Hospital, Durham.
Brown, William M. B., Major, 627 Dickinson Ave., Greenville.
Cannon, Eugene B., Major, Asheboro.
Carter, Paul C., Lt. Col., Madison.
Dryden, James S., Major, Professional Bldg., Raleigh.
Harrell, Leon J., Major, RFD 3, Goldsboro.
Jones, Clyde T., Capt., West Jefferson.
Lancaster, Newton F., Major, Box 830 Waynesville.
Long, Thomas S., 1st Lt., 338 W. Main St., Washington.
McCracken, Joseph P., Major, 907 Mangum St., Durham.
Mauzy, Charles H., Capt., 824 Nissen Bldg., Winston-Salem.
Merritt, Jesse F., Major, 1615 S. College Park Dr., Greensboro.
Munroe, Colin A., Capt., 515 Oakland Ave., Charlotte.
Patterson, Hubert C., 1st Lt., 220 North St., Albemarle.
Robertson, John N., Major, 807 Hay St., Fayetteville.
Rudd, James C., Major, 249 N. Edgeworth, Greensboro.
Salter, Theodore, 1st Lt., Stacy.
Smerznak, John J., Capt., 279 Vance St., Concord.
Smith, Robert E., Capt., Mount Airy.
Woodhall, Barnes, Lt. Col., Cole Mill Rd., Durham City.

Oklahoma

Choice, Robert W., Capt., Wakita.
Foerster, H. A., Lt. Col., 806 NW 25th St., Oklahoma City.
Fox, Raymond H., Lt. Col., 915 N. Main St., Altus.
Greenberger, Edward D., Capt., 216 E. Choctaw, McAlester.
Harrison, S. P., Capt., 1701 NW 31st St., Oklahoma City.
Hendren, Walter S. Jr., Capt., 501 N.W. 12th, Oklahoma City.
Henry, Millard L., Capt., Heavener.
Hubbard, John R., Lt. Col., 1628 N.E. 11th, Oklahoma City.
Hubbard, William E., Capt., 1500 N.E. Park Pl., Oklahoma City.
Lively, Claude E., Major, 1275 S. 6th St., McAlester.
Maril, Joseph J., Major, 816 Bell Ave., Lawton.
Neilson, William P., Lt. Col., 3200 Lahoma Rd., Enid.
Petty, James S., Major, 521 E. Logan, Guthrie.
Prosser, Moorman P., Major, Cent. Okla. State Hosp., Norman.
Records, John W., Major, 2523 N. Dewey, Oklahoma City.
Reiff, William H., Capt., 500 N.E. 15th, Oklahoma City.
Rutherford, Vester M., Major, Box 75, Woodward.
Scott, George W., Capt., Tishomingo.
Shofstall, William H., Capt., 1445 N. Main St., Tulsa.
Smith, Carlton E., Major, 123 N. 4th St., Henryetta.
Stout, Hugh A., Capt., 809 N. Beard St., Shawnee.
Watson, Isaac N., Lt. Col., 439 E. Ayers, Edmond.
Weaver, William N., Lt. Col., 408 S. 12th St., Muskogee.
Wheeler, Homer C., Capt., Sallisaw.

Oregon

Mac Dougall, Walter H., Capt., Box 304, Lakewood, Oswego.
Morris, David A., Capt., 1225 Mill St., Eugene.
O'Donnell, Richard H., Capt., 3537 S.E. Main, Portland.
Ray, George L., Capt., 808 NE 23 Ave., Portland.
Reed, Robert J., Capt., 3816 N.E. 33d Ave., Portland.
Strohm, John G., Col., 610 S.W. Alder St., Portland.
Warnell, Charles E., Capt., 6109 SE Belmont, Portland.

Rhode Island

Barry, Ambrose G., Capt., 20 Prince St., Pawtucket.
Dunstan, Paul L., Capt., State Hosp. Mental Dis., Howard.
Horvitz, Abraham, Capt., 127 Gallatin St., Providence.
McDonnell, William A., Capt., 88 Jefferson St., Providence.
McIntyre, William A., Capt., 132 Whitford Ave., Providence.
Melvin, Edward G., Major, 57 Albert Ave., Cranston.
Nestor, Thomas A., Major, 710 N. Main St., Providence.
Perry, Thomas Jr., Capt., 46 Pitman St., Providence.
Rogell, Harold I., Lt. Col., 377 Angell St., Providence.

Virginia

Alexander, John E., Major, Vienna Medical Center, Vienna.
Buckley, Michael L., Major, 2507 N. Pershing Dr., Arlington.
Cantor, Hyman, Capt., 17 Wythe St., Petersburg.
Driscoll, William D. R., 1st Lt., 518 Riverside Ave., Covington.
Edwards, Hugh R., Lt. Col., Buxton Hosp., Newport News.
Humphries, Thomas J., Capt., 1141 2d St. S.W., Roanoke.
Jones, Herbert C., Lt. Col., 1638 Westover Ave., Petersburg.
Jones, William R. Jr., Capt., 1004 West Ave., Richmond.
Judson, John H., Capt., 6121 N. 18th St., Arlington.
Kirchner, John A., Capt., Hercules Powder Co., Radford.
Larkum, Newton W., Lt. Col., Box 1384, Charlottesville.
Nalls, Walter L., Lt. Col., 3110 Grove Ave., Richmond.
Phipps, Glenn W., Capt., PO Box 74, Independence.
Pritchett, Drake, Capt., 108 W. Main St., Danville.
Robertson, Rowland H. Jr., Capt., Lewis-Gale Hosp., Roanoke.
Robins, Charles R. Jr., Major, Stuart Circle Hosp., Richmond.
Rowe, Carter R., Major, 1200 Prince Edward, Fredericksburg.
Siersema, Reynold C., Major, 120 Westmoreland, Richmond.
Snider, John D., Capt., Ashburn.
Sproul, Alexander E., Capt., E. Beverly St., Staunton.
Stanley, Robert R., Capt., Charlottesville.
Steinberg, Harry, Major, Box 64, Bastian.
Verdel, Louis F., Col., Vet. Adm., Roanoke.
Wolfe, Frank B., 1st Lt., Coeburn.

Washington

Black, John J., Major, 209 E. 9th, Ellensburg.
Carter, Ronald P., Major, 3216 W. 58th St., Seattle.
Gunderson, Harold J., Capt., 1011 Grand, Everett.
Judd, Herman S. Jr., 1st Lt., West. State Hosp., Ft. Steilacoom.
Kroger, Orville C., Capt., 114 W. Magnolia, Centralia.
Lyons, Clinton G., Major, 6061 7th Ave. N.E., Seattle.
Meyer, William V., Capt., 1006 Colby Ave., Everett.
Nakashima, Victor K., Capt., 1017 Jackson St., Seattle.
Overley, Harold G., Capt., % C. J. Alexander, Prosser.
Petrone, Rosco E., Capt., American Lake.
Proffitt, Josiah C., Lt. Col., 4710 University Ave., Seattle.
Wham, Manley J., Capt., Holden.

Wisconsin

Behnke, C. H., Capt., 8410 Watertown Plank Rd., Wauwatosa.
Bitter, Reuben H., Major, 85 Oakland Ave., Oshkosh.
Dorn, Anton S., Capt., 1535b N. 15th St., Milwaukee.
Dunker, George O., Capt., 2302 E. Beverly Rd., Milwaukee.
Finn, Walton C., Major, 20 Forest Ave., Fond du Lac.
Gosman, Joseph A., Capt., 423 Main St., Racine.
Hartman, Ralph F., 1st Lt., 802 Court St., Janesville.
Heil, Julius V., Capt., 1445 W. Forrest Home Ave., Milwaukee.
Joachim, Frederick G., Major, 1619 Monroe St., Madison.
Kalb, Clifford H., Capt., Grafton.
Lewis, Russell F. Jr., Capt., 202 E Ave. S., Waukesha.
Liberman, David L., Major, Vet. Adm. Facility, Wood.
McRoberts, Jerry W., Lt. Col., 1735 N. 7th St., Sheboygan.
Mallow, Harvey G., Capt., 312 Main St., Watertown.
Meyer, Kilian H., Capt., 2130 E. Locust St., Milwaukee.
Mokrohisky, Stephen M., Major, 912 E. Mason St., Green Bay.
Reinardy, Everett W., Major, 633 Washington St., Burlington.
Sagi, Joseph H., Capt., 1609 N. Prospect Ave., Milwaukee.
Salinsky, Lester V., Major, 1923 N. 13th St., Sheboygan.
Tripodi, Donald W., Major, 3205 W. Wisconsin, Milwaukee.
Weston, Frank L., Col., 166 Lakewood Blvd., Madison.

Canal Zone

Goerger, Verne F., 1st Lt., Gorgas Hosp., Ancon.
Hooper, Rector C., Capt., Gorgas Hosp., Ancon.

MEDICAL OFFICERS RELEASED BY THE NAVY

NAVAL RESERVE MEDICAL OFFICERS RECOMMENDED FOR RELEASE FROM ACTIVE DUTY

Alabama

Holmes, William C................Foley
Peters, George S............Montgomery

Arizona

Rice, Philip E..................Glendale

Arkansas

Amis, James W..............Fort Smith
McLochlin, Ralph E..........Little Rock

California

Anderson, Herbert, Jr.......Los Angeles
Arkush, Albert S.....Brentwood Heights
Arthur, James M.................Fresno
Bennett, Dudley W........San Francisco
Brown, Harrison B........San Francisco
Campbell, James V.............Oakland
Carter, Marshall L...........Los Altos
Chew, William B...............Berkeley
Clark, Frank B..............Long Beach
Feingold, Benjamin F.......Los Angeles
Fisher, Robbin E................Pomona
Folsom, Clarence H..........San Marino
Fraser, Harold E..........San Francisco
Frug, James B...................Berkeley
Gaw, Emir A...................San Diego
Goldman, Alfred..........San Francisco
Graeser, James B................Oakland
Graves, Charles A..........Beverly Hills
Haigh, John S..................Pasadena
Haley, Philip S..................San Jose
Harrall, Pinckney.........San Francisco
Harrington, John T.......San Francisco
Hartsough, Christopher W., Jr..San Diego
Hill, Harold A............San Francisco
Hockenbeamer, Ernest P........San Jose
Hull, Eugene H..........San Bernardino
Hunter, James T............Los Angeles
Johnson, Robert W........San Francisco
Josephson, Joseph B............San Jose
Kelley, Harry W..................Oakland
Lapin, Morey..................Los Angeles
MacPherson, Fraser L.........San Diego
Manley, Donald J................Hayward
Martin, Hugh H..................Riverside
McMaster, Paul E.........Beverly Hills
Meamber, Donald L...........Montague
Mensor, Merrill C.............San Mateo
Michael, Paul ....Piedmont
Moore, James W...................Ventura
Myers, Orris R......................Eurecka
Nesting, Orlando S..................Vallejo
O'Hara, Francis P...............San Diego
O'Meara, Francis P...........Bakersfield
Parker, Thomas...........Laguna Beach
Pederson, Allen J.............Santa Cruz
Pfaff, Richard O..................San Jose
Purcell, Howard M.........Los Angeles
Redell, John C...................San Diego
Regan, James F..............Los Angeles
Roen, Paul B....................Woodland
Roller, Charles S..................Hayward
Salvadorini, Vasco A.......San Francisco
Schneider, Elliot G.........Los Angeles
Shelby, Donald C.............Watsonville
Smith, Daniel D.....................Salinas
Smith, Frank H....................Berkeley
Smith, Joseph G....................Oakland
Spessard, Thomas N..............Piedmont
Stephens, Bruce Miller.........Escondido
Sumner, Wendell W...........Los Angeles
Surridge, Robert C., Jr.........Oakland
Tattersall, Kenneth L.......Santa Monica
Vaughn, John O...................Stockton
Vieira, Frank G.............Corona Del Mar
Vincent, Robert P.........Santa Barbara
Wentz, Arthur E.............Los Angeles
Wharton, Charles W..............Anaheim
Wilson, Llewellyn E.......San Francisco
Zumwalt, Reuben H.......San Francisco

Colorado

Marsh, John W.................Greeley
Miles, Martin B.................Boulder
Shull, Clarence W.....Glenwood Springs

Connecticut

Campbell, Sherburne............Meriden
Curley, William H., Jr........Bridgeport
Friedman, Nathan H..........Bridgeport
Neff, William E., Jr............Cheshire
O'Meara, Francis P.............Darien
Quimby, Robert L........West Hartford
Sponzo, James J................Hartford
Strongin, Herman F.............Groton

Delaware

Bowdle, Frederick A........Wilmington

District of Columbia

Greenberg, Milton M........Washington
McCarthy, Charles L.......Washington
Monat, Henry A............Washington
Moss, Leland C.............Washington

Florida

Anderson, Thomas M............Eustis
Bowser, Frank E..............Key West
Eichert, Herbert ....Miami
King, Raymond H..........Jacksonville
Maxwell, Eugene B........Miami Beach
McClamroch, James M........Gainesville
Payton, Frazier J..........Miami Beach
Phillips, Kenneth....................Miami
Richardson, John R.........Miami Beach
Sory, Bailey B., Jr...........Palm Beach
Tribble, Charles E...............DeLand
Turk, John P., Jr....................Miami
Wattles, Frank M............Jacksonville

Georgia

Ansley, Robert B...............Decatur
Fort, Lynn, Jr....................Atlanta
Hailey, Hugh E...................Atlanta
Mitchell, Marvin A..............Atlanta
Ridley, John H...................Atlanta
Roberts, Charles P..............Atlanta
Rogers, John H..................Atlanta
Wilson, Richard B...............Atlanta
Wright, Edward S...............Atlanta

Illinois

Baird, Blanchard M............Marissa
Barry, Fravel S.................Glenview
Benjamin, Eustace L..........Evanston
Blender, William, Jr..............Peoria
Ford, William K.................Rockford
Gladish, Donald G..............Glenview
Greene, Ronald R..............Chicago
Greer, Miller ....Vandalia
Harris, John J......................Chicago
Lebensohn, James E.............Chicago
Martin, George A..................Chicago
Mennella, James V...............Chicago
Meyer, Joseph C...................Chicago
Moore, Lawrence M.................Benton
Rainey, Clarence W.............Wilmette
Rambar, Alwin C..................Chicago
Roberts, Dewey M....................Alton
Sankstone, Manning I..............Chicago
Shambaugh, Philip ....Chicago
Sours, James W.......................Peoria
Stephens, Harry H................Oak Park
Stevens, John W.................Du Quoin
Wyman, George J......................Dixon
Zimmerman, Edward F.............Chicago

Indiana

Ash, Herold H.....................Lafayette
Fleming, Justus M..................Elkhart
Gehres, Robert W.................Shelbyville
Long, Max R...........................Marion
Tharp, Ray ....Indianapolis

Iowa

Abbott, Walter D...........Des Moines
Buresh, Abner.............Lime Springs
Collins, Robert M.........Council Bluffs
Fritchen, Arthur F..............Decorah
Gallagher, John P..............Oelwein
Graeber, Frederick O........Des Moines
Hughes, Robert O.............Ottumwa
Krauel, Louis H...........Cedar Rapids

Kansas

Algie, William H...........Kansas City
Anderson, Donald A..............Salina
Wood, Lawrence E..........Kansas City

Kentucky

Bell, George M.................Ashland
Glenn, John P................Russellville
Parks, Stanley S..............Lexington

Louisiana

Bristow, Louis J., Jr........New Orleans
Danna, Pascal L............New Orleans
Hattaway, Milton M........New Orleans
Little, Archibald A.........New Orleans

Maine

Hurd, Allan C.................Gardiner
Mandelstam, Abe W...........Lewiston

Maryland

Flynn, Philip D...............Baltimore
Holden, Frederick A..........Baltimore
Karfgin, Arthur ....Baltimore
Thomas, Bernard O., Jr........Frederick
Wheeler, Howard L...........Baltimore

Massachusetts

Alt, Richard E.....................Beverly
Bennett, Henry S..............Brookline
Byrnes, James E..................Holyoke
Carmody, John T. B................Paxton
Chute, James L.................Osterville
Dolan, Ralph F....................Boston
Dupre, Frederic E...............Worcester
Feldman, Noah N..................Holyoke
Hayes, John J.......................Boston
Hoyt, Lyman H..................Brookline
Johnson, Carroll W............Worcester
Macaluso, Anthony..........W. Newton
McHugh, Edward J................Holyoke
McLean, Sterling A............Middleboro
Palmer, Robert S................Brookline
Ritchie, Morris J.................Westfield
Schmidhofer, Ernst..................Boston
Smith, Edward C..................Brookline
Sprague, Howard B.........Chestnut Hill
Tudor, Frederic ....Milton
Weiner, Fred F..................Brockton
Wills, Arthur A.................Braintree
Zupanec, Ralph ....Boston

Michigan

Abbott, Vernon C..................Pontiac
Aldrich, Leonard C.............Houghton
Ambrose, Jesse C.............Melvindale
Anderson, Gordon H...........Dearborn
Belanger, Ernest E........River Rouge
Bonifer, Philip P............Battle Creek
Conover, George Van A.............Flint
Driscoll, John J.....................Detroit
Grigg, Arthur P....................Saginaw
Gugino, Frank J.....................Reese
Hill, Harold C......................Howell
Jones, Horace C....................Detroit
Klaus, Cyril D...............Grand Rapids
Miller, Hugh A., Jr..................Detroit
Salot, Russell F...............Mt. Clemens
Slack, Walter K....................Saginaw
Sowers, Bouton F.........Benton Harbor
Strom, Arthur W..................Hillsdale
Teed, Reed W...................Ann Arbor
Young, Donald C..................Detroit

MEDICAL OFFICERS RELEASED BY THE NAVY

Minnesota

Funk, Victor E.	Oak Terrace
Lannin, Donald R.	Mabel
Neel, Harry B.	Albert Lea
Rice, Hagbart G.	Thief River Falls
Sorem, Milton B.	St. Paul
Travis, James S.	St. Paul
Van Bergen, Frederick H.	Minneapolis
Weis, Benjamin A.	St. Paul
Westrup, John E.	Lanesboro

Mississippi

Donaldson, Frank A.	Oakland
Lipscomb, Lee Mc.	Jackson

Missouri

Atwell, Floyd C.	St. Louis
Bartlett, Willard, Jr.	St. Louis
Bassett, Sam A.	St. Louis
Carney, Joseph E.	St. Louis
Coburn, Donald F.	Kansas City
Flanders, Horace F.	Kansas City
Hartnett, Leo J.	St. Louis
Hurst, Ben B., Jr.	Rock Port
Hurst, Wilfred W.	Joplin
Johnstone, Paul N.	Kansas City
Kinman, Lindell M.	Normandy
Klein, Edward H.	Kansas City
Mooney, Marcel L.	Kansas City
Mordaunt, Richard H.	St. Joseph
Schuhmacher, Nelson R.	Liberty
Skinner, John S.	Clayton

Nebraska

Abts, Eugene J.	Randolph
Ferciot, Charles F.	Lincoln
Francis, Norton L.	Bancroft
Kappus, Harold C.	Omaha
Kilgore, Robert N.	York
Morgan, Donal H.	McCook
Waltemath, Glen F.	North Platte

New Hampshire

Lee, Theodore H.	Troy
Walker, Thomas B.	Portsmouth

New Jersey

Byer, Maurice Y.	Trenton
Davidoff, Manuel A.	Newark
Dorris, Earl D.	Cedar Grove
Dunham, Malcolm M.	Woodridge
Eccleston, Herbert H.	Hackensack
Finnerty, Urban R.	Montclair
Gerner, Harry E.	Jersey City
Goldstein, Robert	Dover
Hummel, Ira L. C.	Salem
Ill, Herbert M.	Glen Ridge
Morton, David P. M.	E. Orange
Mustermann, Otto H.	Union City
Parsonnet, Eugene V.	Newark
Rainey, Willard G.	Princeton
Romano, Vincent E.	Newark
Schlossbach, Theodore	Ocean Grave
Seybold, Arthur D.	Plainfield
Tirrell, Chester M.	Newark
Tomec, Richard F.	Montclair
Yaguda, Asher	Newark

New Mexico

Pate, Henry D.	Carlsbad

New York

Berkowitz, Abraham	New York
Berman, Harold H.	Ogdensburg
Bernstein, Phineas	New York
Bookman, Ralph	New York
Buscemi, Arthur A.	Jackson Hts., L. I.
Childs, Edward P.	New York
Daley, William J.	Buffalo
Dargeon, Harold W. K.	New York
Delbridge, Ralph E.	Rochester
Dell'Aquila, Dominic J.	New Rochelle
De Santo, Dominic A.	New York
Ehrlich, Harry	Brooklyn
Feld, Harold	Brooklyn

New York—Continued

Fitch, Leston E.	New York
Fournier, Louis G.	Syracuse
Gallaher, Charles S.	Rochester
Gilbert, George A.	Schenectady
Gilbert, Joseph G.	Brooklyn
Goldwater, Leonard J.	New York
Graham, Allan S.	Mt. Vernon
Granet, Emil	New York
Greene, Oscar	New York
Hammill, Hamilton J.	Pelham
Harrison, Alvie B.	New York
Hauser, Louis A.	New York
Heckel, George P.	Rochester
Holzsager, Theodore G.	Brooklyn
Horton, Arthur J.	St. Albans
Jaleski, Thomas C.	Larchmont
Kelly, LeMoyne C.	Rochester
Kruger, Alexander W.	New York
Lane, Joseph A.	Rochester
Lange, Henry P.	Brooklyn
Leider, Morris	Brooklyn
Livingston, Edward M.	New York
MacDonald, William J.	Buffalo
Marting, Frank L.	Schenectady
McCarthy, William J.	Brooklyn
McCormick, Geo. W.	Staten Island, L. I.
Medd, Charles L.	Manhasset
Meek, Raymond E.	New York
O'Neill, Francis J.	Binghamton
Paladino, John L.	Brooklyn
Paterno, Joseph G.	Brooklyn
Potter, Leman W.	White Plains
Scharbius, Alfred A., Jr.	Long Island
Schneller, Arthur	Long Island
Schrade, Alfred M.	Bronx
Strully, George J.	Bronx
Trivilino, Alfred A.	Jamaica, L. I.
Vogel, Henry E.	Buffalo
Wald, Oscar	Brooklyn
Woodworth, Everett A.	Kenmore

North Carolina

McDonald, Angus M.	Charlotte

Ohio

Bachman, Robert V.	Cleveland
Beal, Lynn E.	Toledo
Check, Paul E.	Columbus
Crile, George, Jr.	Cleveland Heights
Davies, Drew L.	Columbus
Domall, Edwin E.	Toledo
Forrester, Charles R.	Toledo
Fronek, Otis J.	Cleveland Heights
Gardner, George E.	Lancaster
Gaspari, Emidio L.	Toledo
Gillette, Robert S.	Toledo
Gold, Michael J.	Dayton
Masters, William E.	Columbus
Michael, Oscar J.	Danville
Myers, Stanley A.	Youngstown
Obenour, Sterling W.	Zanesville
Seyler, Lloyd E.	Dayton
Thomas, Berger	Columbus

Oklahoma

Blue, Johnny A.	Guymon
Devanney, Phil J.	Sayre

Oregon

Boyer, John M.	Portland
Campbell, James E.	Roseburg
Enkelis, Jacob J.	Portland
Johnsrud, Russell L.	Portland
Sharkey, William P.	Portland
White, Leslie A.	Eugene

Pennsylvania

Androsky, Bernard S.	Pittston
Bortz, Edward L.	Philadelphia
Brant, Robert E.	Phoenixville
Brown, Clark E.	Philadelphia
Clutz, Paul A.	Mercersburg
Conoway, Horace B.	Philadelphia

Pennsylvania—Continued

Conrad, Chester A.	Palmyra
Conrad, Roy G.	Lebanon
Farmer, Rodney A.	Greensburg
Freeman, Eliot N., Jr.	Schuylkill Haven
Hartman, William F.	Lancaster
Kintzing, William B.	Hanover
McNair, Stirling S.	Wayne
Moyer, Raymond C.	Philadelphia
Peters, James M.	Philadelphia
Rech, Joseph F.	Reynoldsville
Richardson, Clesson W.	Philadelphia
Silcox, Louis E.	Philadelphia
Sonneborn, Robert M.	Pittsburgh
Wycoff, William C.	Pittsburgh

Rhode Island

Bray, Russell S.	Providence
Londergan, James P.	Providence
Marks, Herman B.	Pawtucket
O'Brien, Thomas J.	Newport
Stephens, Henry F.	Barrington

South Carolina

McInnes, George F.	Charleston

Tennessee

Anderson, Joseph D.	Franklin
Gresham, Charles S.	Johnson City
King, John C.	Memphis
Zimmerman, Dan J.	Morristown

Texas

Aten, Eugene L.	Dallas
Buehler, Martin S.	Dallas
Bush, Leonard E.	Huntsville
Cairns, Arthur B.	Dallas
Cox, Lyman T.	El Paso
Curb, Delos G.	Albany
Duggan, Le Roy B.	Houston
Duncan, Horace E.	Dallas
Fox, Everett C.	Dallas
Grow, Max H.	Dallas
Hamill, Dan B.	Corsicana
Heath, Jesse B.	Madisonville
Kelley, Richard E.	Houston
Kerbow, Dock F.	Paris
Kildee, Henry A.	Portland
Koontz, Lee A.	San Antonio
Margraves, Ross D.	Houston
McKenzie, Walten H.	Ft. Worth
Peek, John S.	Brownsville
Rhine, Leland R.	Tyler
Robert, William P.	Beaumont
Roberts, Joseph D., Jr.	Longview
Spence, Harry M.	Dallas
Young, Jack G.	Dallas

Vermont

Coyle, John A.	Norwich

Virginia

Bondurant, Charles H.	Roanoke
Fugate, Robert C.	Roanoke
Gemmill, Thomas L.	Radford
Johns, William A.	Richmond
Marable, James E.	Newport News
McGuire, William P.	Winchester
Schafer, William L., Jr.	Alexandria

Washington

Collins, William W.	Sunnyside
Galbraith, James E.	Seattle
Joers, Lawrence E. C.	Tacoma
Le Cocz, Edward A.	Seattle

West Virginia

Bird, James D., Jr.	Elm Grove, Wheeling
Dobbs, Lee F., Jr.	Wheeling
French, August M.	Logan
Smith, Clyde A.	Beckley

Alaska

Walkowski, August S.	Anchorage

ORGANIZATION SECTION

Washington Letter

(From Our Regular Correspondent)

Feb. 4, 1946.

Opinions of Blue Cross President on National Health Problem

John R. Mannix, national chairman of the Blue Cross Plans for hospitalization, told members of the Blue Cross commission at the quarterly meeting that federal legislation would not be necessary to solve the national health problem. He based this opinion on a current membership of 20 million persons and a weekly enrolment of 100,000 in the organization. The nonprofit group has a membership of 3,500 hospitals. The commission set up a special group to study provision of additional hospital facilities for veterans. Mr. Mannix said that a national health program should permit enrolment of self-employed persons in a hospital plan. Members of the commission besides Mr. Mannix are M. Haskins Coleman, Richmond, Va., vice chairman; George Putnam, Boston, treasurer; Dr. Louis E. Jarrett, New Orleans; Ray F. McCarthy, St. Louis; Dr. Basil C. MacLean, Rochester, N. Y.; E. A. van Steenwyk, Philadelphia; Msgr. R. Marcellus Wagner, Cincinnati; F. A. Wardenburg, Wilmington, and C. Rufus Rorem, Chicago, director of the national organization.

Nurses' Memorial Campaign Gets Off to Good Start

The campaign to raise $2,000,000 to erect a nurses' national memorial in Washington has been launched with considerable success. At a Washington meeting, at which Mrs. Harry S. Truman was guest of honor, $150,000 in initial pledges was obtained. The memorial will take the form of a social center or home for nurses and other women in the armed forces medical corps. Surg. Gen. Norman T. Kirk, principal speaker, paid tribute to the work done by the 57,000 army nurses who served during the war. He mentioned the nurses on the Anzio beachhead who performed their duties within range of enemy fire. He also lauded Capt. Gladys Mealer, chief nurse in the tunnel at Corregidor, and the 55 nurses, the dietitian and the physical therapist who "sweated in the hell of the Santo Tomas internment camp for almost three years with nothing but rice to eat for most of the time and not enough of that." "The real monument to the work of the army nurse is enshrined in the hearts of the men they served so well," he said.

Development of "Cosmetic" Artificial Hand at Walter Reed

Although cautioning against overoptimism, Lieut. Col. Donald B. Slocum, director of the Walter Reed Hospital laboratory, reports that a new type of "cosmetic" hand, which "looks like one and can be used like one," has been developed at the hospital. Progress is reported in the efforts of Major Charles A. Jackson, dental officer, and T/3 C. O. Anderson and others who are utilizing plastics of which dentures are made to develop lifelike hands that can be worn without gloves. A staff of eleven research engineers and highly trained technicians are working on the new "hand" in the Walter Reed laboratory. All seven of the nation's army hospitals caring for amputees are doing laboratory work, each specializing on a particular limb. Walter Bura, head of the division of prosthetic services of the Veterans Administration, states that the program will be permanent.

Antivivisection Bill to Get Hearing Next Month

A public hearing, possibly in February, has been promised on the Lemke antivivisection bill by the House District committee. Spokesmen have assured Representative Lemke, Republican of North Dakota, that his bill will have an early hearing.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Scientific Research

Senator Willis, Indiana, for himself and Senator Hart, Connecticut, Senator Hawkes, New Jersey, Senator Hickenlooper, Iowa, Senator Smith, New Jersey, Senator Stanfill, Kentucky, Senator Wiley, Wisconsin, and Senator Young, North Dakota, has introduced S. 1777 to establish a National Science Foundation as a corporation, the initial members of which will be fifty recognized leaders in the fields of fundamental science, social sciences, medicine, engineering and education, and lay persons of recognized standing in public affairs. The initial members will be appointed by the President from nominations requested by him from the National Academy of Sciences for those fields within the province of the academy and from recognized national organizations in those fields outside that province. The foundation will be authorized to fill vacancies in its membership and to appoint a chief executive officer. It will be authorized to report annually to Congress on the monetary needs of American institutions with regard to research and training in all departments of science. It will aid by means of scholarships and fellowships in these departments. It will be required to request advice from the National Academy of Sciences in matters relating to the physical and biologic sciences and mathematics, including basic medicine and engineering.

Congressman Luce, Connecticut, has introduced H. R. 5332 to establish an executive department in the government to be known as the Department of Science and Research, to foster, promote and develop the study and spread of scientific knowledge and its practical application. There will be five bureaus in this department: (1) a bureau of Physics and Mathematical Science, (2) a Bureau of Public Health and Social Science, (3) a Bureau of Scientific Education and Information, (4) a Bureau of the Biological Sciences and (5) a Bureau of Engineering and Technological Sciences.

Charitable Deduction from Income Taxes

Representative Luce, Connecticut, has introduced H. R. 5296, providing that, beginning with the taxable year 1946, physicians, surgeons and dentists shall be permitted an additional credit as a deduction on their income tax equal in terms of percentages to that portion of their time each year which is devoted to charity, free clinic work and public research work.

Health of School Children

A joint resolution, S. J. Res. 137, has been introduced by Senator Morse, Oregon, proposing that the Secretary of Labor, acting through the Children's Bureau and in cooperation with federal, state and local agencies and qualified institutions of higher education, shall (1) make studies of the health and physical status of children of school ages, (2) make studies of the facilities and services offered by schools for the correction of physical defects of children of school ages and (3) recommend the use of and demonstrate in representative urban and rural areas methods of conducting school health examinations and providing school health services. For the fiscal year ending June 30, 1946 an appropriation of $100,000 will be authorized and for each of the next two fiscal years $450,000.

Miscellaneous

Senator Pepper, Florida, for himself and Senator George, Georgia, Senator La Follette, Wisconsin, and Senator Taft, Ohio, has introduced S. 1779 proposing to authorize the Federal Security Administrator, through such officers or employees or units of the Federal Security Agency as he may designate, to assist the several states, their political subdivisions and nongovernmental organizations (1) to develop and carry out, particularly in areas where such measures are of importance to military or naval personnel, measures designed to prevent prostitution, eliminate conditions contributing to sex delinquency and provide services for the rehabilitation of sex delinquents and (2) to foster cooperation in communities among law enforcement, welfare and other public and private activities for the purpose of preventing prostitution, eliminating conditions contributing to sex delinquency and providing services for the rehabilitation of sex delinquents. For the fiscal year ending June 30, 1947 an appropriation of $700,000 is to be authorized and so much as may be necessary for each fiscal year thereafter.

S. 1769, introduced by Senator McFarland, Arizona, proposes to amend the Social Security Act to provide for an increase of 35 per cent in the federal share of old age assistance, aid to dependent children and aid to the blind.

STATE LEGISLATION

Georgia

Bills Introduced.—H. R. 170 proposes a resolution to amend the state constitution to create a State Board of Health with authority over all matters relating to the health and life of the people of the state. H. 695 proposes to require both parties to a marriage to present a certificate signed by a qualified physician, licensed to practice medicine and surgery in any state or United States territory, stating that the applicant has been given an examination and is not infected with syphilis. H. 712, to amend the act relating to the licensing of pharmacists, proposes that applicants for registration shall be graduates of a high school and shall have attended a generally recognized college of pharmacy for a period of two years. H. 734 proposes that all persons between the ages of 14 and 50 should have their blood examined for syphilis by an approved laboratory test. H. 771, to amend the workmen's compensation law, proposes that verified copies of all medical reports of claimants be sent immediately to the claimant or his attorney and to the State Board of Workmen's Compensation.

Bills Passed.—H. 655, to amend the law relating to the qualifications of applicants for a license to practice nursing, passed the house January 21. It proposes to reduce from 21 to 20 the required age of the applicant. H. 732 passed the house January 21 and the senate January 26. It proposes to authorize the Board of Health to make and promulgate reasonable rules and regulations for the protection of the health and lives of inmates and patients of hospitals, sanatoriums, infirmaries, maternity homes, nursing homes and other institutions where persons are received for treatment, examination, maternity care or nursing care in the state. In connection therewith a hospital advisory committee would be established, to consist of three members appointed by the Medical Association of Georgia or its board of councilors; the total membership of the advisory committee would number fourteen.

Kentucky

Bills Introduced.—S. 56, to amend the law relating to the practice of pharmacy, proposes that applicants for a license to practice pharmacy must be citizens of the United States, must have graduated from a school or college of pharmacy recognized and approved by the Kentucky Board of Pharmacy and must submit proper affidavits showing a minimum of one year of experience in a retail pharmacy under the supervision of a registered pharmacist. H. 87 and S. 30, to amend the workmen's compensation act, propose to increase the number of persons on the medical committee of the workmen's compensation board from three to five and further propose that such committee shall include at least one surgeon and one neurologist. H. 96 proposes the creation of a Kentucky State Board of Naturopathic Examiners to examine, license and regulate persons desiring to practice naturopathy, which is defined by the bill as being "a distinct system of healing based upon its own philosophy and teachings as to the causes of disease, the prevention and cure of human illness, and the maintenance of health. It means 'Nature-Cure, or Health by Natural Methods'; it embraces the prevention, diagnosing and treating human beings with their injuries, ailments or diseases, by the use of one or more of the physiological, physical or mechanical, chemical or material, forces or agencies of nature. It is a science and art of assisting nature in elimination, maintenance, and revitalization, using all methods and modalities that will assist in removing toxins and pathologies, restoring cell vitalization and remineralization without destruction of vital force, as taught in naturopathic schools, colleges, or universities teaching courses of not less than four years of nine months each, covering not less than forty-four hundred class hours of fifty minutes each, covering a curriculum peculiar to the art and science and practice of naturopathy." The proposal would further authorize licensees thereunder to practice naturopathy in accordance with the state health laws and in conformity with the teaching of class A naturopathic schools, "embracing the use of phytotherapy (the use of herbs and the facts thereof, provided the same is not under the narcotic law), minor surgery, meaning the breaking or severing the skin or membrane, or and orificial work, obstetrics and gynecology, autotherapy and biologicals, and shall enjoy right and privileges equal to those enjoyed by other physicians practicing in this commonwealth." Licensees hereunder would be authorized to sign death certificates and execute all legal documents and certificates with the same authority as under the law members of other schools or systems of treatment may do.

Massachusetts

Bills Introduced.—H. 771 proposes that any person entitled to soldier's relief under the general laws shall have the right to procure necessary treatment by a doctor, dentist, nurse or hospital of his own choosing, and the reasonable charges made by such doctor, dentist, nurse or hospital for services rendered shall be paid by the appropriate municipal authorities. H. 782 and H. 794, to amend the law relating to recipients of old age assistance, propose that aid given shall include the reasonable amount of necessary and proper expenses for medical, hospital and other services rendered to such person. H. 844, to amend the law relating to nonprofit hospital service corporations, proposes that every corporation subject to this chapter be declared to be a charitable corporation. The existing law exempting the property of such corporation from state, county, district and municipal taxes is repealed. H. 1132, to amend the law relating to actions for personal injuries, proposes that a physician or surgeon who makes a physical or mental examination of an injured person in connection with any claim for damages for personal injuries shall be deemed to be the agent of the party for whose information the examination was made for the purpose of answering interrogatories. H. 1180, to amend the law relating to recipients of old age assistance, proposes that such assistance shall include the services of a physician of such recipient's choice if said physician meets the requirements of the Massachusetts Medical Society. H. 1339 proposes a comprehensive act relating to the regulation of animal experimentation. H. 1340, to amend the law relating to animal experimentation, proposes that whoever purchases or acquires a dog, cat or bird to be used for experimentation or multilation while alive shall keep a record and submit a report to the commissioner of public safety of each such transaction showing the source from which such animal or bird was obtained. H. 1380 proposes the establishment of a hospital clinic in downtown Boston to receive and care for veterans who require medical aid or treatment at any hour of the day or night. H. 1401 proposes that every physician, surgeon or dentist who has served for any period of time in the armed forces shall be exempt from the payment of any fee or charge otherwise payable by him under the laws of the state.

Mississippi

Bills Introduced.—H. R. 10 proposes a resolution memorializing the Congress of the United States to enact suitable and adequate legislation for the training of doctors at government expense to take care of personnel of the United States armed forces wounded in the service of the country. H. 72 proposes the creation of a four year medical school as a department of the University of Mississippi which shall be operated as a class A medical school in accordance with the "Council of Medical Education" of the American Medical Association. H. 73 proposes the creation of a Memorial Hospital Commission to establish a War Memorial Hospital which shall maintain and operate a cancer clinic and perform research work in cancer and other diseases. H. 106, to amend the law relating to the operation of a Mississippi State Insane Hospital, proposes that neither the superintendent nor any other person legally participating in the execution of the treatment and regimen prescribed for a patient therein shall be liable either civilly or criminally on account of said participation. H. 276 proposes that all residents of the state on reaching his or her sixteenth birthday shall submit to a medical examination as to the absence or presence of venereal disease. The medical examination shall be made by any licensed physician selected by the person to be examined. S. 45 proposes the creation of a four year medical school and a university hospital to be built, established, maintained and operated in the state of Mississippi, the school to maintain standards of schooling and teaching which shall be in accordance with the standards approved by the Council on Medical Education and Hospitals of the American Medical Association and of the Association of American Medical Colleges. The proposal would also create a "Physicians Advisory Board" consisting of five physicians, who shall be members in good standing of the Mississippi State Medical Association. S. 90 proposes to authorize the State Board of Health to maintain injunctive procedures to enjoin and profit any person from the practice of any profession required to be licensed by said board when such person is practicing said profession without having first obtained such license.

Bills Passed.—S. 80 passed the Senate January 29. It proposes to require applicants for a marriage license to present a certificate showing freedom from venereal disease. The certificate may be executed by an active licensed physician in Mississippi, or a physician licensed to practice in any or all of the other states of the United States, or the District of Columbia, or by a commissioned medical officer on active duty in the armed forces of the United States, or by a medical officer of the United States Public Health Service. When the applicant is unable to pay for such certificate, the certificate may also be executed by any full time county health officer in the state who is a regular graduate of medicine and is licensed to practice medicine in Mississippi.

Missouri

Bills Introduced.—H. 831, to amend the law relating to the appointment of deputy state commissioners of health, proposes that the county courts of any county be authorized to appoint as a deputy state commissioner of health a duly licenced qualified physician. The existing law requires only the appointment of a reputable physician. S. 359 proposes the establishment within the department of education of a division of registration and examination to coordinate the work of existing boards of registration and examination, including the state board of medical examiners, the state board of chiropractic examiners and the state board of osteopathic registration and examination.

New York

Bills Introduced.—A. 326, to amend the hospital lien law, proposes that, where an injured person receives treatment, care and maintenance in a hospital ward, cost rates shall for the purposes of this section be deemed equivalent to the scheduled rates currently approved by the industrial commissioner and the superintendent of insurance for cases under the workmen's compensation law. The lien of the hospital shall not extend to personal services rendered by a physician or surgeon, however. A. 470 and S. 470, to amend the labor law, propose that the illness or disability of a claimant causing his unemployment must be certified by a physician or surgeon duly licensed to practice in the state of New York. S. 434, to amend the law in relation to maternal and child health, proposes that the commissioner of health be required to act in an advisory and supervisory capacity in matters pertaining to the safeguarding of motherhood, the saving of infant life and the prevention of the diseases and defects of childhood. S. 469, to amend the unemployment insurance law, proposes that the sickness or accident disability causing the claimant to be unemployed shall be certified under oath by a physician or surgeon duly licensed to practice in the state of New York. S. 709, to amend the insurance law, proposes that the superintendent of insurance be authorized to withhold his approval of an accident insurance or health insurance form if any such form or any application, rider or endorsement to be used in connection therewith contains provisions which are unjust, unfair, inequitable, misleading or contrary to law or the public policy of the state.

Virginia

Bills Introduced.—H. 39 and S. 45 propose that the governor be authorized to execute insurance contracts for group hospitalization and surgical benefits for state employees who become participating members of the plan. H. 58 and S. 52 propose that the state department of health be authorized to establish a program for the medical examination of all children in the public free schools, such examination to be sufficient to disclose the health, physical condition and defects of such public school children. H. 66 proposes that the state department of health be directed to establish a program for the education of the citizens of the state engaged in agriculture and industry of the value and benefits of prepaid hospital and medical care and to appropriate the sum of ten thousand dollars for such program. S. 51, to amend the law relating to marriage and divorce, proposes that it shall be sufficient grounds for divorce when either spouse has been adjudicated insane, committed to and continuously confined for five or more years in one or more institutions for the confinement and treatment of insane persons and is shown to be incurable. The divorce would not be granted until after a thorough examination of the insane defendant by three physicians of recognized ability in mental diseases has been made. S. 64 proposes the creation of a Commission on Post-Mortem Examinations and the appointment of a Chief Medical Examiner who shall be a skilled pathologist and eligible to be licensed as a Doctor of Medicine. The Chief Medical Examiner would be provided with an office and laboratory having adequate professional and technical personnel and physical facilities for the conduct of postmortem examinations and of such pathologic, bacteriologic and toxicologic investigations as may be necessary or proper. The section dealing with the appointment of coroners would provide that each coroner shall be appointed from a list of two or more licensed doctors of medicine submitted by the component medical society of the county or city in which the appointment is to be made. S. 72 proposes to authorize the state board of public welfare to provide reasonable rules and regulations for the construction, maintenance and operation of boarding homes, homes for the aged and other similar homes, the word "home" meaning "any place, establishment or institution operated or maintained for the maintenance or care of two or more aged, infirm, chronically ill or incapacitated persons." The proposal would exempt from its provisions any hospital, nursing home, maternity home, children's home or other home or institution which is already or may hereafter be subject to regulation by the board. S. 73 proposes the creation of a sanatorium for white residents affected with nervous diseases, mental diseases, alcoholism or drug addiction, to receive modern sanatorium care and treatment.

Coming Medical Meetings

Annual Congress on Medical Education and Licensure, *Chicago, Feb. 11-12.* Dr. Victor Johnson, 535 North Dearborn St., Chicago, Secretary.

American Association of Anatomists, Cleveland, April 4-6. Dr. Eliot R. Clark, University of Pennsylvania School of Medicine, Philadelphia 4, Secretary.

American Association of Pathologists and Bacteriologists, Chicago, March 8-9. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary

American Orthopsychiatric Association, New York, Feb. 14-16. Dr. Nina Ridenour, 1790 Broadway, Room 916, New York 19, Secretary.

American Physiological Society, Atlantic City, March 11-15. Dr. Wallace O. Fenn, 260 Crittenden Blvd., Rochester 7, New York, Secretary.

American Society for Experimental Pathology, Atlantic City, March 11-15. Dr. Harry P. Smith, 630 W. 168th St., New York 32, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Atlantic City, March 11-15. Dr. Raymond N. Bieter, University of Minnesota Medical School, Minneapolis, Secretary.

American Surgical Association, Hot Springs, Va., April 2-4. Dr. Warfield M. Firor, Johns [illegible] more 5, Secretary.

Chicago Medical Sc [illegible] ference, *Chicago,* March 5-8. Dr. Warren W. [illegible] Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 18-21. Dr. John G. Young, 1719 Pacific Avenue, Dallas 1, Director of Clinics.

Federation of American Societies for Experimental Biology, Atlantic City, March 11-15. Dr. D. R. Hooker, 19 West Chase Street, Baltimore 1, Secretary.

Medical Library Association, New Haven, Conn., March 25-27. Miss Frida Pliefke, 2000 Medical Arts Bldg., Minneapolis 2, Secretary.

Missouri State Medical Association, St. Louis, March 24-26. Dr. Ralph L Thompson, 634 N. Grand Blvd., St. Louis 3, Secretary.

National Conference on Medical Service, Chicago, February 10. Dr. Cleon A. Nafe, 822 Hume-Mansur Bldg., Indianapolis 4, Secretary.

Southeastern Surgical Congress, Memphis, Tenn., March 11-13. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Georgia, Secretary.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Los Angeles Association Plans Addition to Building.—The Los Angeles County Medical Association plans to build an addition to provide much needed stack room facilities for the library and office and community rooms for the association itself.

New Section on General Practice.—On January 24 the organization meeting of the section on general practice of the Los Angeles County Medical Association was held under the chairmanship pro tem of Dr. Eric A. Royston and secretaryship pro tem of Dr. H. Vern Soper, both of Los Angeles.

Hospital Staff Cooperates to Reduce Accidents.—On January 15 the medical staff of the San Antonio Community Hospital, Upland, met in conference with law enforcement officials of the West End of San Bernardino County, the morticians and ambulance owners and judges of the various courts and representatives of the press to discuss and make recommendations of ways and means to reduce materially the heavy unnecessary traffic fatalities. The conference was the result of the recognition that traffic deaths and personal injuries had increased since V-J day, Aug. 14, 1945. A committee of three was named to draw up a resolution carrying recommendations to reduce these accidents, and copies were sent to local and national authorities as well as to the members. The resolution urges the following:

More traffic officers and greater frequency of patrol.

Driver educational program and (*a*) educational program in junior and senior high schools, with "behind the wheel" actual instruction; (*b*) prerequisite training and certification before issuance of driver's license; (*c*) physician's approval of ability of driver with physical disability.

All drivers involved in accidents to be reexamined within thirty days or driver's license revoked:

(*a*) Immediate revocation of licenses of all drivers involved in accidents resulting in personal injury or death, pending reexamination.

(*b*) Drivers apprehended operating a motor vehicle without a license to be incarcerated in county jail for a term of not less than ninety days and during such incarceration, at the discretion of the department of motor vehicles, perform such duties in the general program to enhance the safety of our highways.

Heavier and uniform fines and sentences along with impounding of cars on all violations of drunken driving and/or reckless driving and/or driving without due caution or any wanton disregard of safety on the highway.

Improved engineering on all main highways; to be at least four lane divided highways:

(*a*) Immediate survey of dangerous intersections and removal of all obstructions impairing visibility.

(*b*) More frequent location checks on mechanical equipment and driving ability by all traffic officers.

(*c*) Adequate flood lighting of intersections, particularly those used by pedestrians, and all main intersections.

COLORADO

Midwinter Postgraduate Clinics.—The eleventh annual midwinter postgraduate clinics conducted by the Colorado State Medical Society will be held at Denver hospitals and the Shirley Savoy Hotel, February 27-March 1. This will be the first revival of the Denver midwinter clinical session since 1942, when war conditions forced its indefinite postponement. Among the speakers will be:

Dr. Edward L. Compere, Chicago, The Treatment of Compound Fractures.
Dr. Bruce K. Wiseman, Columbus, Ohio, Hypersplenism and the Blood Dyscrasias.
Dr. Henry G. Poncher, Chicago, Fever as a Diagnostic Problem in Infants and Children.
Dr. Frederic E. B. Foley, St. Paul, The Part of the General Practitioner in the Management of Vesical Neck Obstruction.
Dr. M. Edward Davis, Chicago, The Modern Management of Placenta Previa.
Dr. J. Dewey Bisgard, Omaha, The Cancer-Ulcer Problem of the Stomach.
Col. John B. Grow, M. C., Denver, The Modern Approach to Neoplasms of the Chest.

DELAWARE

Thirty Years as Editor.—Dr. W. Edwin Bird, Wilmington, observed his thirtieth anniversary as editor of the *Delaware State Medical Journal* with the December issue. In editorial comment the journal states that Dr. Clarence A. Smith, Seattle, of *Northwest Medicine* has served for forty-two years and Dr. Holman Taylor, Fort Worth, Texas, of the *Texas State Journal of Medicine* for thirty-six years.

ILLINOIS

Personal.—Dr. Ruth E. Church, who has been medical director of the District Health Unit Number 7 at Washington, Iowa, for several years, has resigned to become director of the McDonough-Fulton Bi-County Health Department, with headquarters in Macon and Canton, effective December 1.

Chicago

Personal.—Dr. Robert Neubaur, head of the medical division of the Yugoslav Red Cross, was guest at a dinner on January 25 given by the Chicago chapter of the American Committee for Yugoslav Relief.——Albert L. Raymond, Ph.D., formerly a member of the staff of the Rockefeller Institute for Medical Research and recently director of research of G. D. Searle and Company, has been appointed vice president in charge of research of the company.

Society News.—Dr. Herbert S. Ratner, Hinsdale, Ill., director of the student health service, Loyola University School of Medicine, lectured at the Marquette University School of Medicine, Milwaukee, on the "Extramedical Element in the Therapeutic Decision."——John L. Bach, associate director of public relations, American Medical Association, addressed the Lions Club, Michigan City, Ind., January 23 on "Fifty Years of Medical Progress."——At the recent meeting of the Chicago Tuberculosis Society Drs. Jacob J. Mendelsohn was elected president, Arthur S. Webb, Wheaton, vice president and Hugo T. Cutrera secretary-treasurer.

New Appointments at Illinois.—Dr. Douglas A. MacFadyen and Dr. George M. Hass have been appointed Rush professor of biochemistry and Rush professor of pathology, respectively, in the Rush-Presbyterian Hospital division of the University of Illinois College of Medicine. Dr. MacFadyen previously was chief of the division of chemistry and physics of the Army Medical Center in Washington and Dr. Hass was chief of the department of pathology of the School of Aviation Medicine, Randolph Field, Texas, both with the rank of major. The appointments constitute an important step in the achievement of an expanded research and teaching program involving the basic medical departments of the Rush-Presbyterian Hospital division.

INDIANA

Health Center Named for Dr. Morgan.—The new health center at Flanner House has been named in honor of the late Dr. Herman G. Morgan, in recognition of his thirty-five years' service as secretary of the Indianapolis Board of Health (THE JOURNAL, Sept. 8, 1945, p. 140).

Personal.—Dr. Miles F. Daubenheyer, Holton, has been named superintendent of the Muscatatuck State School, Butlerville, succeeding Dr. Otis R. Lynch, who resigned to become superintendent of the Richmond State Hospital.——Dr. James M. Burk has resigned as secretary of the Decatur Board of Health, effective January 1.——Dr. Richard N. Washburn, Rensselaer, has been appointed coroner of Jasper County to fill the unexpired term Dr. Merle D. Gwin, who has moved to Florida.

School of Health and Physical Education.—Indiana University, Bloomington, has announced the establishment of a school of health, recreation and physical education as the first step in the university's postwar development program. The school will have four departments: physical education offering service courses in all schools of the university; health and safety, giving courses in these subjects together with a program of research and graduate study; recreation, coordinating all campus activities and student intramural sports, with courses designed to train directors of community and school recreation programs, and professional physical education, offering technic courses for teachers, also with research and graduate study programs.

Division of Adult Hygiene and Geriatrics.—Dr. William F. King, Indianapolis, formerly health commissioner of Indiana, is director of the recently created division of adult hygiene and geriatrics of the state department of health. The new division was authorized at the last session of the Indiana general assembly (THE JOURNAL, March 17, 1945, p. 663). The *Journal of the Indiana State Medical Association* points out that to be concerned with factors of aging and problems of the aged is a relatively new and untried activity of the public health administration. It stated that the number of men and women in Indiana who have attained the age of 60 and over is in excess of three hundred and fifty thousand. The number in this age group in the continental United States is estimated at above thirteen million. Within the last census decade 1930 to 1940 there was an increase in the number of persons 65 years of age and over of 35 per cent, while in contrast the total population increase was but 7.2 per cent in the same period.

IOWA

Personal.—Effective January 1, Dr. Everett M. George, Des Moines, who recently returned from service with the U. S. Navy, assumed the position of editor of the *Journal of the Iowa State Medical Society.* He succeeded Dr. Lee F. Hill, Des Moines, who had held the position for the past nine years.

Course on Tropical Diseases.—A second laboratory training course on parasites of malaria, amebiasis and tropical diseases was recently held at the State Hygienic Laboratory, Iowa City. The course was sponsored by the State University of Iowa College of Medicine, Iowa City, and the Iowa State Department of Health in cooperation with the U. S. Public Health Service. The first course of this kind took place July 23-28, 1945. Those in attendance at the two courses totaled fifty-eight, including fifty-four laboratory workers and four physicians representing thirty-one counties and thirty-five hospitals in all parts of the state.

MASSACHUSETTS

The Cutter Lecture.—Dr. Donald Hunter, physician to the London Hospital, London, recently gave the Cutter Lecture on Preventive Medicine at the Harvard Medical School, Boston, on "Research in Industrial Medicine in Great Britain at War."

Study of Dental Caries.—The Dental Bureau of the Massachusetts Department of Public Health, Boston, in preparation for conducting a research program in the control of dental caries, is making a survey to determine the incidence of caries among children by age groups and to determine the availability of sufficient dentists to cope with the existing problem. The fluoride control of all public water supplies in the state has already been determined and in only one town, Farumsville, was as much as 1 part per million of sodium fluoride (1.3 parts per million) found. In all other public water supplies the amount of sodium fluoride was near 0.2 part per million. These data will be used as the basis for the proposed study, which will investigate the control of dental caries by utilizing fluorides in public water supplies, in prophylactic pastes and mouth washes, in pastilles and lozenges, in pills and in topical applications. In each community where the study is being conducted 250 children are participating, and a like number are serving as the control.

MICHIGAN

Personal.—Dr. Louis P. Munger, Hart, recently completed fifty years in the practice of medicine.——Dr. Sylvester E. Gould, Eloise Hospital, Eloise, has been appointed editor in chief of the *American Journal of Clinical Pathology* to succeed Dr. Israel Davidsohn, Chicago.

Society Honors Members Who Served in War.—The Saginaw County Medical Society gave a dinner recently to welcome home its members who have been in military service. Dr. Alexander R. McKinney, Saginaw, was toastmaster at the banquet, at which wives of members and widows of former members were guests.

Meeting on Cancer.—The Genesee County Medical Society will devote its meeting March 20 to a symposium on cancer, to be presented by:

Dr. Louis E. Phaneuf, Boston, Cancer of the Uterus.
Dr. Paul A. O'Leary, Rochester, Minn., Cutaneous Malignancy.
Dr. Charles B. Huggins, Chicago, Cancer of the Genitourinary System.
Dr. Frederick A. Coller, Ann Arbor, Cancer of the Stomach.
Dr. Frank E. Adair, New York, Cancer of the Breast.

NEW JERSEY

New Director of Preventable Disease.—Dr. Leonid S. Snegireff, Trenton, has been appointed director of the bureau of preventable diseases of the New Jersey State Department of Health, according to the *Bulletin* of the National Tuberculosis Association. The new bureau includes divisions covering tuberculosis and venereal disease control, maternal and child health, preventive medicine, industrial and dental health and health education. Dr. Snegireff was formerly medical assistant in the department of health.

Brandenburg Arrested on Abortion Charge.—A ring charged with performing illegal operations was broken up January 18 when Bergen county and state police raided a farm house on a 25 acre estate in Park Ridge and arrested six persons. The New York *Times* reported that, according to Michael Orrechio, detective chief of Bergen County, the ring was headed by Dr. Leopold W. A. Brandenburg, Union City, who has a long record of arrests (THE JOURNAL, Sept. 30, 1944, p. 310). Among those arrested with Dr. Brandenburg were Mrs. Sadie Strohmeyer, North Plainfield, who was convicted on abortion charges in 1939 and who was on a five year probation. The bail for Brandenburg was set at $25,000 and for Mrs. Strohmeyer at $10,000. The other persons' bail was set at $5,000 each. Dr. Brandenburg has been mixed up in a number of irregularities, such as violation of narcotic laws, possession of stolen goods and harboring a fugitive by removing finger prints.

NEW YORK

Dr. Conway Ends Thirty-One Years' Service.—Dr. John A. Conway, district health officer with headquarters in Hornell, resigned January 1, concluding thirty-one years' service in the state department of health. Dr. Conway was one of the first six physicians appointed on the department staff in 1914 under the title of "district sanitary supervisor," a position corresponding to the present "district state health officer." He is the only one of the original appointees who has served continuously in the same position to the present time. For many years he has served the counties of Allegany, Chemung and Steuben from headquarters in Hornell. At one time he was president of the Steuben County Medical Society.

Rabies Consultant Appointed.—Alexander Zeissig, D.V.M., has been appointed veterinary consultant on rabies on the staff of the division of communicable diseases of the state department of health. In this capacity he will organize a statewide program for the control of rabies, including preventive measures for application in advance of the appearance of the disease. Dr. Zeissig in 1930 was awarded a fellowship in medicine by the National Research Council and studied for one year at the medical school at Heidelberg, Germany. Since his return to this country in 1931 he has been associated continuously with the New York State Veterinary College, first as assistant professor and later as associate professor of bacteriology.

New York City

The Biggs Memorial Lecture.—Laurence H. Snyder, Sc.D., professor of medical genetics, Ohio State University College of Medicine, Columbus, will give the annual Hermann M. Biggs Memorial Lecture at the New York Academy of Medicine, April 4. His subject will be "Medical Genetics and Public Health."

Society Honors Past Presidents.—The Medical Society of the County of Kings will hold a dinner February 20 in the Hotel St. George, Brooklyn, to honor its immediate past presidents. The society voted the annual dinner honoring the retiring presidents in 1941 but discontinued the practice during the war. The physicians to be honored are Drs. William C. Meagher, John J. A. Gainey, Leo S. Schwartz and Joseph Tenopyr, all of Brooklyn. They will be given medals and scrolls. Dr. Morris Fishbein, Editor of THE JOURNAL, will discuss "Medicine and the Postwar World."

Student Society.—At a recent meeting of the Contin Society, honorary scholastic society of the New York Medical College, Flower and Fifth Avenue Hospitals, Dr. Thomas H. Evans, research professor of anatomy, was elected to honorary faculty membership. Senior students chosen for membership include Lesley M. Warshaw, Julius Stein, Sidney J. Peck, Robert Maxfield and Ednita P. Bernabeu. Undergraduates chosen from the junior class were Peter Laderman, Burton L. Wise, Herbert M. Eskwitt, Morton P. Lazar, Max Cohen and Norman Ackerman. Mr. Ackerman is secretary of the Contin Society.

Friends of Medical Research.—A group known as the Friends of Medical Research has been organized to inform the public about animal experimentation and its contribution to public health. The organization was launched under the auspices of the New York Academy of Medicine, and Dr. Simon Flexner has been named honorary president. The first efforts of the new organization are to be directed toward the defeat of the DiCostanzo-Davidson bill in the state legislature to make research work with dogs unlawful. It is intended that the statewide organization shall be coordinated with similar ones in every county of the state, one of which has already been organized in Rochester and Monroe County.

Robert Potter Teaches First College Course in Science Reporting.—Robert D. Potter, science editor of the *American Weekly* and former president of the National Association of Science Writers, will teach the first college course in science reporting and editing at New York University, it was announced January 24. The course has been organized to meet a demand for trained science writers brought on by the interest in scientific subjects which has grown out of the war. It is the culmination of several months' planning by the National Association of Science Writers and will be offered on Wednesday evenings from 8 to 10 during the spring term beginning in February. The needs of different mediums, an examination of sources and tools needed by the science writer, and a discussion of science terminology will feature the course. Each student will be given regular science writing assignments from learned journals and will have his articles discussed and edited by the instructor. A critical discussion of science stories which reach an editor's desk will be held at each class session. Mr. Potter was formerly with the New York *Herald Tribune* and Science Service and was acting chairman of the department of general science at the New York University School of Commerce during the war.

Internal and Psychosomatic Medicine.—Cornell University announces a project in internal medicine at the New York Hospital designed to deal clinically and experimentally with psychosomatics. The principal objects are to develop a practical method of dealing with ambulatory clinic patients who suffer from symptoms related to their emotional states and life situations, to engage in experimental study of the mechanisms involved in illness of this nature and to train especially able young physicians in experimental methods and a critical psychosomatic approach to the care of the sick. About half time will be spent in the diagnosis and management of patients and half time in research dealing mainly with mechanisms underlying symptoms. The project will be under the direction of Dr. Harold G. Wolff, assisted by Dr. Stewart Wolf, internist, Dr. Herbert S. Ripley Jr., a psychiatrist, and six fellows. Fellows will be appointed for a period of one year with the expectation of serving for two or more. Candidates for fellowship, who will receive a salary of $2,500 a year for the first year, should have had at least two years in internal medicine and have given evidence of a psychiatric orientation. They need not necessarily have had experience in research but must have a serious interest in investigation, energy and curiosity. Prospective candidates should arrange for a personal interview through Dr. David P. Barr, New York Hospital, 525 East Sixty-Eighth Street, New York.

NORTH CAROLINA

Portraits of Physicians.—Portraits of Drs. Richard H. Whitehead and Charles S. Mangum were presented to the University of North Carolina School of Medicine December 2. Dr. Whitehead was dean of the medical school from 1891 to 1905, when he went to the University of Virginia; he died in 1916. Dr. Mangum was on the medical school faculty from 1896 until his death in 1939, serving as dean from 1933 to 1937. Dr. George L. Carrington, Burlington, president of the University Medical Alumni Association, presided at the ceremony, which took place in the library of the medical school.

OHIO

Changes in Health Personnel.—Dr. Arthur B. Ream, Batavia, has resigned as health commissioner of Clermont County to engage in private practice in Mechanicsburg.——Dr. George A. Poe, Port Clinton, is the new health commissioner of Ottawa County.

Isaac Harris Named Professor Emeritus.—Dr. Isaac B. Harris, professor of clinical surgery, Ohio State University College of Medicine, Columbus, has retired with the title of emeritus professor. Dr. Harris graduated at Starling Medical College in 1900, joining the faculty in 1904 after finishing advance study at the Harvard Medical School and the New York Postgraduate Medical School. He has continued on the staff steadily since then. The present name of the Starling College is the Ohio State University College of Medicine.

Cleveland Clinic Observes Twenty-Fifth Anniversary.—The Cleveland Clinic will celebrate its twenty-fifth anniversary, February 24-27. The opening will be held in the auditorium of the Cleveland Medical Library. A "Refresher Course in Treatment," consisting of a series of lectures and demonstrations, will be given at the clinic. In connection with this course Edmund N. Cowdry, Ph.D., St. Louis, will address a dinner meeting on "Precancerous Lesions." Dr. Bertrand E. Lowenstein, instructor in the department of physiology of Yale University School of Medicine, has joined the division of research at the Cleveland Clinic and will carry on genitourinary investigations under the terms of the Packard Endowment gift, it is reported.

OKLAHOMA

New Executive Secretary.—E. G. Green, educational director of the Oklahoma County Health Association, Oklahoma City, has been appointed acting executive secretary of the association for a minimum of one year. Arthur H. German, who was executive secretary for seven years, resigned to become consultant to the fund raising department of the Midwest division of the American Red Cross with offices in St. Louis. Mr. Green was a member of the original board of the old Tuberculosis Society of Oklahoma City, which was a forerunner of the Oklahoma County Health Association, chartered with its services expanded April 22, 1943.

OREGON

Course in Ophthalmology.—The sixth annual spring postgraduate course in ophthalmology and otolaryngology will be held in Portland, April 15-20, under the auspices of the Oregon Academy of Ophthalmology and Otolaryngology and the University of Oregon Medical School, Portland. Guest speakers will include Drs. Algernon B. Reese, professor of ophthalmology at Columbia University College of Physicians and Surgeons, New York, and Gabriel Tucker, professor of bronchoscopy and esophagology at the University of Pennsylvania School of Medicine, Philadelphia.

PENNSYLVANIA

Change in Health Board Secretary.—Dr. Charles V. Hogan, for fifteen years a member of the Pottsville Board of Health, has been named secretary to succeed H. J. Herbein, D.D.S., who resigned December 1 after holding the position about thirty-three years. Dr. Hogan has served as member and president of the board for fifteen years.

Philadelphia

The Ulrich Memorial Lecture.—Dr. Thaddeus L. Montgomery, professor of obstetrics and gynecology, Temple University School of Medicine, gave the second annual George A. Ulrich Memorial Lecture February 6 at Jefferson Medical College. The lecture, which was entitled "The Placenta," is sponsored by the Alpha Kappa Kappa medical fraternity, of which John D. Bealer is corresponding secretary. The lecture is named for Dr. George A. Ulrich, who died in 1944. He had been clinical professor of obstetrics at Jefferson and had graduated there in 1901.

Mental Hygiene Lectures—Cancer Seminars.—On January 28 the Philadelphia County Medical Society launched a series of public lectures on various phases of mental hygiene. The initial speakers were Drs. James J. Waygood on "The Emotional Needs of the Infant and Young Child," and Ralph M. Tyson on "The Emotional Factors During Illness in Children." The society gave the first in a series of four cancer seminars January 24 on Cancer of the Breast; others in the series are Pelvic Cancer, February 21, Cancer of the Esophagus and Stomach, March 21, and Cancer of the Colon, April 18.

Fifty Years of Practice.—At a luncheon meeting of the first councilor district of the Medical Society of the State of Pennsylvania, January 8, at the Philadelphia County Medical Society, the following members of the county medical society received framed certificates from the state society in recognition of having been in the practice of medicine for a period of fifty years: Drs. W. Wayne Babcock, Richard D. Burke, Cunningham P. Clark, Clarence H. Fritz, Alfred Gordon, Edwin A. Heller, Daniel J. McCarthy, Louis H. Mutschler, Herbert Old, Charles S. Raue, George N. Richmond, Thomas T. Thomas, Joseph P. Walsh, Rachel R. Williams, and Christian G. Yaeger, Elizabeth L. Pickett, Aldan, Pa., and Henry Archer Cleaver, Wilmington, Del.

TEXAS

Gynecologic Survey of Women in State Institutions.—A comprehensive gynecologic survey of women in Texas state institutions is being organized under the direction of Dr. Willard R. Cooke, professor of obstetrics and gynecology at the University of Texas Medical Branch, Galveston, and his associate, Dr. John D. Weaver. This survey is being made in cooperation with the state board of control with Judge Weaver Baker as chairman. It is supported by a three year grant of $20,000 from the Lilly Research Laboratories of Indianapolis.

Grants for Research.—The Lilly Research Laboratories, Indianapolis, have made a grant of $2,500 to the University of Texas Medical Branch, Galveston, to establish a training fellowship in tissue culture, with special reference to the reticuloendothelial system. The work will be under the direction of Charles M. Pomerat, Ph.D., professor of anatomy and director of the tissue culture laboratory. The National Foundation for Infantile Paralysis has made a grant of $3,500 to the medical branch to support the studies of Ardzroony Packchanian, Ph.D., director of the laboratory of microbiology, on virus transmission in small animals in order to try to devise a rapid diagnosis procedure and to assist in screening tests in therapy.

WASHINGTON

Surgical Society Resumes Activities.—On November 7 the Spokane Surgical Society held its first postwar meeting and voted to hold its usual annual meeting in April. Meetings of the society were suspended during 1942 and 1944 and the spring of 1945.

Pediatric Society Changes Name.—The Seattle Pediatric Society recently changed its name to the Puget Sound Pediatric Society to include in its membership physicians in wider territory than had previously been possible. Officers are Homer T. Clay, Tacoma, president; Walter B. Seelye, Seattle, vice president, and Ward B. Chesley, Seattle, secretary-treasurer.

GENERAL

Orthopsychiatric Meeting.—The American Orthopsychiatric Association will hold its twenty-third meeting at the Hotel New Yorker, February 14-16, under the presidency of Dr. Norvelle C. LaMar, New York. The program has been divided into discussions on Service Problems, Counseling, Treatment of Delinquents, Sociopsychiatric Problems, Group Psychotherapy, Psychoses and Schizophrenia in Childhood, Industrial and Personnel Problems, Psychologic Considerations, Clinical and General Problems and Childhood Emotional Problems.

Robert Page Named Medical Director of Standard Oil Company.—Dr. Robert C. Page, New York, a medical officer in the Army Air Forces during World War II and assistant medical director of the Standard Oil Company of New Jersey, has been appointed general medical director of the company, succeeding Dr. Willard J. Denno, New York, chief medical officer since 1918. Dr. Denno, who developed the company's medical department from an office with one part time physician to a worldwide organization having eleven hospitals and more than 150 physicians and 1,500 nurses and attendants, helped Jersey Standard to become one of the most advanced companies in the field of industrial medicine. He will continue with the company as medical consultant. Dr. Alfred Gage, New York, an assistant medical director, will be in charge of medical service and advice for affiliated companies in Latin America.

Lasker Award Goes to Physicians.—On January 23 the $500 Albert and Mary Lasker Foundation Awards were presented to Dr. Irl C. Riggin, Richmond, Va., health commissioner of Virginia, and Dr. Robert L. Dickinson, New York, gynecologist. The awards are given for the most significant contribution to research in human fertility and for meritorious public health service. According to an announcement Dr. Riggin led Virginia in becoming the seventh state in the union to make planned parenthood services available as part of the state's public health program of maternal care. Dr. Dickinson, as organizer of the National Committee on Maternal Health, has pioneered in fundamental research in the medical aspects of human fertility and its control. The fertility award will be given in honor of the late Dr. Hannah M. Stone, first medical director of the Margaret Sanger Research Bureau, co-author with Abraham Stone of the "Marriage Manual." The public health award will be in honor of Mrs. Margaret Sanger, founder of the birth control movement and at present honorary chairman of the federation.

Resolutions Adopted by Academy of Pediatrics.—At its annual meeting in Detroit, January 15-18, the American Academy of Pediatrics, after careful consideration of proposed legislation in Congress as it relates to child health services, reaffirmed its resolution as adopted at its 1939 session, namely:

> That the American Academy of Pediatrics, regarding the provisions for maternal and child welfare, favors the use of public funds to provide such services to those groups of the population unable to pay for medical services, to the end that the standards of medical care may be maintained at a high level among such groups.

The academy indicated that it does not favor the use of federal funds for those able to provide good medical care from their own sources and directs the attention of those considering proposed legislation to its fact finding study of child health services now in progress, which at its conclusion should assist in the development of sound programs at state levels based on demonstrated needs (The Journal, February 2, p. 298). Pending the completion of this study, it is recognized that urgent needs exist in some states that should be met in the immediate future. To this end the academy recommends that additional federal funds be made available for grants-in-aid to the states under existing maternal and child health and crippled children's programs of title V of the Social Security Act. The academy also listed specific criticisms of S. 1318, citing this for its belief that the maternal and child welfare act of 1945 does not represent the best form of legislation for the purpose for which it was written. At the recent meeting Dr. Lee F. Hill, Des Moines, Iowa, was named president-elect of the academy and Dr. Jay I. Durand, Seattle, was inducted into the presidency. Dr. Clifford G. Grulee, Evanston, was reelected secretary-treasurer.

Appointments to Advisory Cancer Council.—Drs. Robert S. Stone, San Francisco, and Charles B. Huggins, Chicago, have been appointed for three year terms on the National Advisory Cancer Council, succeeding Albert B. Hastings, Ph.D., Boston, and Dr. James B. Murphy, New York, whose terms have expired. Dr. Stone is professor of roentgenology at the University of California Medical School, Berkeley. Dr. Huggins, who is professor of surgery (urology) at the University of Chicago School of Medicine, has just been named professor of urology and head of the department at Johns Hopkins University School of Medicine (The Journal, January 26, p. 231). The National Advisory Cancer Council is composed of six members in addition to the Surgeon General of the U. S. Public Health Service, who is chairman ex officio. It serves as an advisory body to the Surgeon General in the direction of the work of the National Cancer Institute. The law establishing the council provides that two members shall be appointed each year according to the council's membership arrangement. Other council members are Dr. George M. Smith, Pine orchard, Conn., research associate in anatomy, Yale University School of Medicine, New Haven, and medical director, of the Anna Fuller Fund for Cancer Research, executive director of the council; Andrew C. Ivy, professor of physiology, Northwestern University Medical School, Chicago; Frank E. Adair, New York, Memorial Hospital for the Treatment of Cancer and Allied Diseases, and Sherwood Moore, director of the Mallinckrodt Institute of Radiology, Washington University School of Medicine, St. Louis.

New Program on Crippling Diseases Affecting Children.—A nationwide five point program to expand and accelerate its fight against all crippling diseases affecting children will be set into action at once by the Shriners of North America, it was announced in New York recently. The new program has been developed through a series of meetings sponsored by the Shriners' Imperial Council. The five phases of the new plan are:

> The granting of scholarships, to be known as the Fellowships of the Shriners' Hospitals for Crippled Children, in orthopedic surgery to outstanding, qualified medical students. An initial yearly appropriation of $7,500 has been set aside. Three scholarships of $2,500 each will be made in 1946 for training in three universities, soon to be named.
>
> An annual appropriation of $3,750, to be granted for scholarships in orthopedic nursing. These nurses, in turn, will instruct and give encouragement to other nurses interested in specializing in the crippled children's field.
>
> The establishment of a research project to probe further the sources, methods of treatment and prevention of all crippling diseases attacking children.
>
> The expansion of present facilities and equipment of the fifteen Shriners' hospitals now in operation and establishment of new hospitals in other localities.
>
> The establishment of convalescent homes in connection with all Shriners' hospitals as rapidly as possible. The installation of recreational and occupational therapy courses to assure continuing physical improvement and self development after healing has been completed.

The convalescent and occupational therapy plan is already under way at the San Francisco Hospital. The first Shriner Hospital was opened in Shreveport, La., Sept. 16, 1922. In addition to this hospital and the one in San Francisco, other hospitals are located in Minneapolis-St. Paul; Portland, Ore.; St. Louis; Montreal, Canada; Springfield, Mass.; Chicago; Philadelphia; Greenville, S. C.; Honolulu; Spokane, Wash.; Salt Lake City; Winnipeg, Canada; Lexington, Ky., and San Francisco.

CORRECTION

Brig. Gen. Raymond W. Bliss.—In a recent item under Medicine and the War it was erroneously stated that Brig. Gen. Raymond W. Bliss graduated from Harvard Medical School, Boston, in 1910. This should have read Tufts College Medical School, Boston, in 1910.

Deaths

Waller Smith Leathers ⊕ prominent medical educator, died at his home in Nashville, Tenn., January 26, aged 71, of cerebral hemorrhage.

Dr. Leathers was born near Charlottesville, Va., on Dec. 4, 1874. He carried on special studies in biology, geology, mineralogy and chemistry and graduated at the University of Virginia Department of Medicine, Charlottesville, in 1895. A member of the Alpha Omega Alpha, he subsequently received many honorary degrees. He had graduate work at Johns Hopkins University, the University of Chicago, Biological Laboratory in Long Island, N. Y., and the Marine Biological Laboratory, Woods Hole, Mass., as well as at Harvard Medical School. In 1896 Dr. Leathers began his active teaching career as a member of the department of chemistry at the Miller School of Virginia, subsequently going to the University of South Carolina as professor of biology. In 1899 he went to the University of Mississippi as professor of biology, later serving as professor of physiology and professor of physiology and materia medica. In 1903 he assisted in the organization of the medical school at the University of Mississippi, subsequently serving as its dean.

Joining Vanderbilt University School of Medicine, Nashville, in 1924 as professor of preventive medicine and public health, he became associate dean in 1927 and dean the following year, holding this position until June 30, 1945, when he retired. In 1928 he was chosen a member of the university's board of trustees.

Dr. Leathers' intense interest in medical education took him actively into related fields. He was a member of the first Basic Science Board created in Tennessee in 1943, serving as the first president. He also served as chairman of the then new state public health council. In Mississippi he had served the Mississippi State Board of Health, first in 1910 as director of public health and from 1917 to 1924 as director of public health and executive officer and member of the board. He was a member of the National Board of Medical Examiners from 1923 to 1934, serving as president from 1930 to 1934 and was elected a member at large in 1936. He had been a member of the board of scientific directors of the International Health Division of the Rockefeller Foundation from 1930 to 1933 and from 1935 to 1937, serving as a member of the advisory committee on public health of the Commonwealth Fund since 1929 and various terms on the Advisory Health Council of the U. S. Public Health Service and health and medical advisory committee of the American Red Cross.

He served the American Medical Association first in 1911 as a member of the speakers' bureau of the Council on Health and Public Instruction, as a member of the Council on Medical Service and Public Relations when it was created in 1943, resigning April 6, 1945, as secretary of the Section on Preventive Medicine and Public Health from 1920 to 1923, holding the chairmanship the following year, as a member of the House of Delegates from 1923 to 1927, and in 1938 was a member of an advisory committee to the Council on Medical Education and Hospitals.

He was a member of numerous local and national societies, serving for many years as chairman of the committee on professional education of the American Public Health Association, serving as president of the national group in 1940-1941. He was vice president of the American Association for the Advancement of Science in 1928, vice president of the Association of American Medical Colleges in 1938, and president in 1942-1943. He served as secretary of the Section on Public Health of the Southern Medical Association from 1913 to 1917 and as president, 1922-1923.

Dr. Leathers was a man of excellent judgment, of high medical ideals and a leader who inspired confidence.

Carl Ellsworth Black ⊕ Jacksonville, Ill.; Chicago Medical College, 1887; born in Winchester, Ill., July 4, 1862; an Affiliate Fellow of the American Medical Association, of which he had been a member of the House of Delegates in 1904; member of the Western Surgical Association, serving as president in 1930; emeritus member of the Illinois State Medical Society and in 1904 president; president of the Morgan County Medical Society in 1927; fellow and member of the board of governors of the American College of Surgeons; served as surgeon at the Passavant Memorial and Our Saviour's hospitals and of the Chicago and Alton and the Chicago, Burlington and Quincy railroads; in 1944 presented to the Illinois State Medical Society the Carl E. Black Collection of photographs of physicians, which contained more than three thousand photographs, said to be the largest single collection in the country except for that in the office of the Surgeon General of the U. S. Army, and registered in the state museum at Springfield as the Carl E. Black-Illinois State Medical Society Collection; served as president of the Morgan County Historical Society; died January 13, aged 83, of coronary heart disease.

James Joshua Terrill ⊕ Dallas, Texas; University of Texas School of Medicine, Galveston, 1902; born near Armstrong, Mo., Feb. 21, 1877; specialist certified by the American Board of Psychiatry and Neurology, Inc.; since 1943 honorary professor of neuropsychiatry at the Southwestern Medical Foundation; emeritus professor of neuropsychiatry at Baylor University College of Medicine; formerly instructor and professor of pathology at his alma mater; past president of the North Texas Medical Society and the Dallas County Medical Society; formerly secretary of the Galveston County Medical Society; member of the Southern Medical Association; served as visiting pathologist at the John Sealy Hospital and St. Mary's Infirmary; chief of laboratory, Temple Sanitarium in Temple from 1913 to 1917; a medical director of the Timberlawn Sanitarium; died October 10, aged 68, of cardiovascular renal disease and pulmonary tuberculosis.

Larue Depew Carter ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1904; born in Westfield, Ind., March 17, 1880; professor of neurology and since 1914 a member of the faculty at the Indiana University School of Medicine; specialist certified by the American Board of Psychiatry and Neurology, Inc.; fellow of the American College of Physicians; served during World War I; colonel, medical reserve corps, U. S. Army, not on active duty; in 1945 appointed to the Indiana Council for Mental Health; chief consultant, "Norways" Sterne Memorial Hospital; visiting chief, department of neuropsychiatry, Indianapolis City Hospital; member of the visiting staff, department of neuropsychiatry at the Methodist and St. Vincent's hospitals; formerly on the staff of the Richmond (Ind.) State Hospital; died January 22, aged 65.

Thomas B. Bass ⊕ Abilene, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1890; past president of the Taylor-Jones Counties Medical Society; member and formerly vice president of the American Psychiatric Association and the State Medical Association of Texas; served as president of the Texas Neurological Society; at one time on the staff of the North Texas Hospital for Insane in Terrell; joined the staff of the Abilene State Hospital in 1901 as first assistant physician, becoming superintendent in 1909 and serving in that capacity until 1943; physician for McMurry College; died December 22, aged 80, of chronic myocarditis.

Russell Lee Roy Allen, Daisy, Tenn.; Birmingham Medical College, 1912; member of the American Medical Association; died in Chattanooga October 13, aged 56, of heart disease.

Thomas Smith Armstrong ⊕ McKeesport, Pa.; Jefferson Medical College of Philadelphia, 1903; on the staff of the McKeesport Hospital; died October 3, aged 65, of heart disease.

Emanuel Stratton Black, Williamstown, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1902; member of the American Medical Association; served during World War I; affiliated with the Veterans Administration; died October 3, aged 64, of coronary thrombosis.

Lester Belmont Bradford, Rockland, Maine; Maryland Medical College, Baltimore, 1905; during World War I a medical officer in the zone of advance; went with the Army of Occupation to Coblenz, Germany, where he remained a year after the war; at one time medical commissioner in the Balkans, helping to organize Red Cross hospitals; served on the staffs of various Veterans Administration facilities; died in Tenants Harbor September 24, aged 61, of chronic nephritis and diabetes mellitus.

Alfred H. Bullock ⊕ Cushing, Iowa; Sioux City College of Medicine, 1900; died September 21, aged 71, of paralysis of the respiratory center and uremia.

Robert E. Caldwell, Waterford, Va.; Medical College of Virginia, Richmond, 1898; died in Bay Pines, Fla., October 6, aged 75, of cerebral hemorrhage.

Raymond Smith Cooper ⊕ Syracuse, N. Y.; Syracuse University College of Medicine, 1910; served during World War I; on the staff of the People's Hospital; died October 7, aged 59, of hypertensive heart disease.

Allen Donaldson ⊕ Carrollton, Ky.; University of Louisville Medical Department, 1898; member of the county board of health and the Radiological Society of North America, Inc.; died November 2, aged 68, of chronic myocarditis.

William B. Finney, Kennett, Mo.; St. Louis College of Physicians and Surgeons, 1890; member of the American Medical Association; served as coroner of Dunklin County; died in St. Francis Hospital, Cape Girardeau, October 27, aged 86, of senility.

Jasper Edwin Guernsey ⊕ Tacoma, Wash.; Missouri Medical College, St. Louis, 1895; for four years county coroner in Iowa; served on the staff of the Eastern State Custodial School in Medical Lake; died December 16, aged 76.

William Nelson Harrison, Upper Montclair, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1895; died October 9, aged 72, of arteriosclerosis.

Walter Lawrence Hearn, Lynn, Mass.; Harvard Medical School, Boston, 1902; member of the American Medical Association; school physician; visiting physician at the Lynn Hospital; died at his summer home in Nahant, September 30, aged 67, of coronary thrombosis.

J. H. Holiman, Dallas, Texas (licensed in Arkansas in 1903); served on the staff of the Pulaski County Hospital in Little Rock, Ark.; died September 15, aged 79, of heart disease.

Ross Holman Jones ⊕ Coudersport, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; chairman of the Potter County Draft Board; served during World War I; on the staff of the Coudersport Hospital; died in the Olean (N. Y.) General Hospital October 23, aged 67, of chronic nephritis, uremia and arteriosclerosis.

Fred Warfield Lane ⊕ Cambridge, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1893; served during World War I; died in the Veterans Administration Facility, Chillicothe, October 11, aged 72, of arteriosclerosis and hypertension.

Lewis Wayne Law, Minneapolis; Harvard Medical School, Boston, 1943; interned at the Ancker Hospital in St. Paul; also a graduate in dentistry; began active duty as a lieutenant (jg) in the medical corps, U. S. Naval Reserve, on Oct. 10, 1944; released to inactive duty on Aug. 3, 1945; instantly killed by a bolt of lightning August 29, aged 29, while on the golf links in Lake Forest, Ill.

William Warner Meiners, Malverne, N. Y.; University of the City of New York Medical Department, 1891; member of the American Medical Association; for a time coroner in Long Island City; died October 20, aged 90, of chronic endocarditis, arteriosclerosis and coronary embolism.

Andrew John Muller ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1897; for many years on the staff of the Kensington Dispensary for Treatment of Tuberculosis; died October 31, aged 71, of carcinoma of the liver.

Michael E. O'Brien, Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1896; member of the American Medical Association; died in St. Francis Hospital October 25, aged 75, of congestive failure.

Herbert Bittner Saylor, Des Moines; Rush Medical College, Chicago, 1908; died September 23, aged 68, of acute pyelonephritis and coronary arteriosclerosis.

Virgil Dural Selleck, Glens Falls, N. Y.; Albany Medical College, 1903; member of the American Medical Association; health officer; on the staff of the Glens Falls Hospital; died October 13, aged 68, of bronchopneumonia and carcinoma of the prostate.

Carl Schurz Tompkins, Randolph, N. Y.; University of Buffalo School of Medicine, 1901; member of the American Medical Association; served during World War I; formerly on the staffs of the City and Buffalo General hospitals in Buffalo, Batavia (N. Y.) Hospital and the Medina (N. Y.) Memorial Hospital; at one time on the faculty of his alma mater; died October 25, aged 73, of edema of the lungs and arteriosclerosis.

Paul Tradelius ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1904; specialist certified by the American Board of Ophthalmology; member of the Brooklyn Ophthalmological Society; consulting ophthalmologist at the Samaritan Hospital and assistant surgeon at the Brooklyn Eye and Ear Hospital; died in St. Mary's Hospital October 11, aged 71, of carcinoma.

John Alfred White II, Springfield, Pa.; Medico-Chirurgical College of Philadelphia, 1916; decorated with the Military Cross of England; received the Distinguished Service Cross and the Croix de Guerre for services during World War I; chief medical examiner of the Pennsylvania Railroad; died in Baltimore November 16, aged 51, of coronary thrombosis.

Samuel Wolf, Brooklyn; Fordham University School of Medicine, New York, 1919; member of the American Medical Association; died September 13, aged 62.

Charles Albert Yoder, Elm Creek, Neb.; Lincoln Medical College of Cotner University, 1902; served during World War I; died October 9, aged 70, of coronary thrombosis.

DIED WHILE IN MILITARY SERVICE

Morris I. Bierman ⊕ Washington, D. C.; University of Minnesota Medical School, Minneapolis, 1920; born in Minneapolis Dec. 18, 1893; specialist certified by the American Board of Radiology, Inc.; served as assistant surgeon in the U. S. Public Health Service Reserve; on the staffs of the Emergency and Providence hospitals; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve in July 1942; on active duty in the Atlantic early in the war; for a short time stationed at the Naval Hospital at Bainbridge, Md.; for eighteen months had been on duty aboard an LST in the Pacific area; died Sept. 21, 1945, aged 51, of coronary thrombosis.

Joseph Harry Buckman, Albuquerque, N. M.; Northwestern University Medical School, Chicago, 1937; member of the American Medical Association; interned at the Evanston Hospital in Evanston, Ill.; began active duty as a lieutenant in the medical corps, U. S. Naval Reserve, on March 16, 1942; promoted to lieutenant commander; died in the U. S. Naval Hospital, Pensacola, Fla., Sept. 14, 1944, aged 38.

Daniel Joseph Hurley, Newton, Mass.; Harvard Medical School, Boston, 1909; born in Boston Nov. 16, 1881; formerly a member of the state board of registration in medicine; member of the Association of Military Surgeons of the United States; a captain in the medical corps of the U. S. Army at Camp Upton, L. I., and later chief of the surgical staff at Fort Bayard, N. M., during World War I; served on the staff of the Boston City Hospital; once surgeon for the Veterans Administration in Boston; began active duty as a lieutenant colonel in the U. S. Army (National Guard) on Jan. 16, 1941; executive officer of the 101st Regiment of the Twenty-Sixth (Yankee) Division until 1942, when he was named recruiting medical officer at Bangor, Maine; two years later became harbor defense surgeon at Portland, Maine, and since then had been on the staff of the Veterans Administration Facility in Newington, Conn.; died in the Lovell General Hospital, Fort Devens, October 15, aged 63, of coronary embolism.

John Kerr Macmillan Jr., Santa Monica, Calif.; College of Medical Evangelists, Los Angeles, 1938; member of the American Medical Association; diplomate of the National Board of Medical Examiners; interned at the Glendale Sanitarium and Hospital in Glendale; served a residency at the Santa Monica Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on Feb. 28, 1944; promoted to captain on Aug. 1, 1945; died in Egypt Oct. 5, 1945, aged 37, of injuries received in an automobile accident.

Jewel Eugene Roberts, Salt Lake City; George Washington University School of Medicine, Washington, D. C., 1938; diplomate of the National Board of Medical Examiners; interned at the New York City Hospital in Welfare Island and the New York City Hospital in New York, where he served a residency; began active duty as a captain in the medical corps, Army of the United States, on July 8, 1942; died in the Station Hospital, Camp Kilmer, N. J., August 16, aged 33, of tsutsugamushi fever.

William Joseph Wagner ⊕ Lieutenant (MC), U. S. Navy, New York; Jefferson Medical College of Philadelphia, 1939; interned at the Roosevelt Hospital; served an internship and residency at St. Vincent's Hospital; commissioned lieutenant (jg) in the medical corps of the U. S. Naval Reserve on June 16, 1942; later entered the medical corps of the regular U. S. Navy in the same rank; promoted to lieutenant; died near Sabine Pass, Texas, September 17, aged 32, of extreme multiple injuries received in an airplane accident.

Harvey Glenn Wible, Monessen, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1935; member of the American Medical Association; interned at the Homeopathic Medical and Surgical Hospital, Pittsburgh; formerly resident at the George F. Geisinger Memorial Hospital in Danville and the Shurly Hospital in Detroit; served on the staff of the Gemmill Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on July 1, 1941; assigned to Station Hospital, Edgewood Arsenal, Maryland; later promoted to captain and major; killed in Hondo, Texas, Sept. 1, 1945, aged 35, in an airplane crash.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 29, 1945.

Public Health in India

The approach of self government for India has emphasized the appalling problem of the public health of that country of 420 million people. Western medical science has been able to touch only the fringe of the problem. India has only 42,000 doctors—one for every 10,000 people; India needs 300,000 doctors. There are only 5,000 trained midwives; 70,000 are necessary. The mass of the people still depend on indigenous medical systems which contribute little to the improvement of the national health, yet they claim and receive from several of the provincial governments privileges and grants grossly inadequate for scientific medicine. In most of India domiciliary treatment of the sick is difficult because of the miserable housing. The hospitals provide only 1 bed for every 3,000 persons. Tribute should be paid to the doctors, Indian as well as British, who have made many important advances in medicine and labored unceasingly to check epidemics and promote hygienic habits.

Indian vital statistics are imperfect, but their story is clear. The recorded death rate is 22 per thousand of population. The infant mortality is 162 per thousand live births. There is an average annual mortality of 145,000 from cholera, 70,000 from smallpox, 31,000 from plague, 290,000 from dysentery, 500,000 from tuberculosis and 3,667,000 from "fevers." The phenomenal increase of population renders the problem of public health more difficult. The Reconstruction Committee of the Viceroy's Council has recognized that a determined and coordinated attack on disease has long been necessary. Its success will depend on corresponding advances in the fields of education, housing and nutrition. A Health Survey and Development Committee, under the chairmanship of Sir Joseph Bhore, has been engaged on its immense task since the cold weather of 1943.

The Rehabilitation of the Medical Libraries of Europe

The Royal Society of Medicine has received from the Rockefeller Foundation $300,000 for setting up and maintaining for four years a Central Medical Library Bureau. The first objective of the bureau is the rehabilitation of medical libraries in the liberated countries, which have suffered so much during the war by German theft or devastation. The second and more permanent objective is the provision of rapid interchange of medical knowledge between individuals and institutions. At the present time the first objective is of paramount importance. Owing to the shortage of paper, means other than the use of printed paper must be considered. During the war the Royal Society of Medicine provided vital information for physicians in the forces overseas by microfilm. This experience will enable the society to perform a similar service in the restoration of medical libraries.

Soldiers Blinded by New Guinea Cherries

At the Liverpool Rotary Club Mr. C. D. Tovell, scientific adviser to the British forces in the Far East, stated that 27 soldiers, now back from fighting in New Guinea, were totally blind as a result of eating what looked like ordinary English cherries. The fruit was discovered at the end of 1942 and its lay name was "finger cherry." It looked and tasted like an English cherry. One or two of these cherries were eaten without ill effects, but soldiers who ate nine or ten became totally blind within a few hours. At present a means of restoring sight has not been found. As soon as the properties of the fruit were discovered, the authorities destroyed as many of the trees as possible.

British War Casualties

In the House of Commons the prime minister gave the total casualties of the armed forces of the British commonwealth and empire from Sept. 3, 1939 to Aug. 14, 1945 (excluding deaths from natural causes) as 1,246,025. This includes all men reported prisoners of war and in the armed forces of the United Kingdom, New Zealand, South Africa and the colonies, all men reported missing during the war. A final statement of casualties will be issued when the fate of those missing is determined and when all prisoners of war are repatriated.

PARIS

(From Our Regular Correspondent)

Jan. 9, 1946.

Doctors in France

A. Rosier, general secretary to the Office of University Statistics, has published in the *Médecin français* an article entitled "Do We Have Too Many Doctors?" For years this question has been unanswered. Since 1932 the Office of University Statistics has attempted to ascertain the optimum number of doctors and the localities needing them. Before the war it supplied information to young doctors regarding the distribution of doctors in France and provided a fund for loans to young doctors with inadequate means. During and shortly after the war the situation became disorganized. Numerous doctors were prisoners in Germany, others had left the devastated areas. Now the situation is becoming more normal again. There has been an appreciable increase in the number of first year students in the faculties of medicine, increasing from 2,071 in 1939 to 2,500 in 1944-1945. For the scholastic year 1945-1946 there has been a great influx of young people in the faculties of medicine because of the return of those deported, the demobilization and the abolition of racial laws. Notwithstanding this steady increase of students, the number of diplomas granted each year remains almost the same: 1,229 in 1900, 1,297 in 1932, 1,251 in 1944. However, 5 per cent of those who receive the diploma do not practice medicine. This year the number of graduates will increase, as in the period subsequent to the war of 1914-1918.

In spite of the constant number of students graduating each year there has been a constant increase in the number of practicing physicians from 15,907 in 1900 to about 27,000 in 1945. This increase is due to a yearly excess in the number of new doctors over those retiring or dying. This surplus was (on an average) about 219 doctors for the period 1910-1920 and 280 for 1920-1945. Rosier remarks that if these conditions continue France will have 3,000 more doctors in ten years. This increase is desirable because of the constant progress of medicine and the increased specialization of doctors, which gives them numerous openings.

In 1900 there was 1 doctor for every 2,445 inhabitants and there is now 1 doctor for 1,450; in several countries of Europe there is 1 doctor for 900 to 1,000 inhabitants. This distribution is very irregular in France. In Paris, Lyons, Toulouse and other important cities there is 1 doctor for 600 to 700 inhabitants; they are overworked and worn out. In numerous industrial centers or devastated areas there is 1 doctor for 3,000 to 4,000 inhabitants. In some places there is an entire absence of doctors. There is need for doctors in the French colonies and for medical inspectors in various institutions. The part time services of a doctor in every concern employing over 50 workmen is being considered as well as a full time doctor in every factory employing 2,000 to 2,500 workers.

Rosier concludes that a surplus of doctors does not exist but, on the contrary, there is need for more doctors and, above all, there is poor distribution of those available. He proposes that the state assist students with inadequate means, asking them, as compensation, to bind themselves to practice in less desirable districts for five or ten years.

Clitocybine, a New Antibacterial Substance

At the meeting of the Academy of Science held in September Prof. A. Charles Hollande presented a memorandum on a new antibacterial substance which he calls clitocybine. This product is extracted from Clitocybe gigantea, a large mushroom of the Agaricus family (Aspropaxillus). The author remarked that on alpine meadows of an altitude between 900 and 1,400 meters the grass around this mushroom does not develop, some dying without putrifying. On observing this he presumed that there was an active principle which inhibited the multiplication of microbes necessary for the putrefaction of vegetable tissues. This mushroom when cooked is edible, but when raw and dried it contains toxic substances. Clitocybine is soluble in water, chloroform, acetone and sulphuric ether; 0.005 cc. of a solution obtained after ether extraction and concentration in water prevents the development of the tubercle bacillus under certain specified conditions. To inhibit under the same conditions cultures of staphylococci, 0.025 cc. of the same solution is necessary. The inhibitory power of clitocybine is present also against Escherichia coli, Eberthella typhosa and Pseudomonas aeruginosa, against which penicillin is not effective. Repeated subcutaneous injections of tuberculous guinea pigs showed the massive lysis and disappearance of virulent tubercle bacilli.

Miscellaneous

At the reopening of the Paris University, 37 foreign scientists were elected doctors "honoris causa"; among those were Wesley C. Mitchell of Columbia University, W. T. Longcope of Baltimore, C. H. Best of Toronto, Horatio E. Smith of Columbia University, posthumously Edward K. Rand of Harvard University, Sir Alexander Fleming of London and Joffe of Moscow.

At its latest meeting the Academy of Medicine elected as foreign associated members E. D. Adrian of Cambridge, Sir Henry Dale of Picadilly, Sir Alexander Fleming of London, B. Houssay of Buenos Aires, George R. Minot of Boston, Theodore H. Morgan of San Francisco, L. A. Orbeli of Russia, Miguel Ozario de Almeida of Rio de Janeiro, Charles H. Best of Toronto and Ross G. Harrison of Washington.

ITALY

(From Our Regular Correspondent)

FLORENCE, Nov. 30, 1945.

Fractures of the Extremities

Dr. Pietre Franceschini, military surgeon serving at the front and in territorial hospitals near the front for the last four years, recently delivered a lecture to the Accademia Medico Fisica of Florence. He reported the results obtained in the therapy of fractures of the extremities, either simple (236 cases) or compound (1,256 cases). He obtained good results with either Bayer-Ombredanne's bandage or the classic posterior traction by means of Delbet's bandages in 125 cases of fracture of the clavicle. There were 17 cases of simple fracture of the shoulder. One soldier in this group had a fracture of the greater humeral tuberosity. The fractured fragment contained the greater tuberosity and a portion of the humeral head. Local anesthesia was applied, and the arm was put in abduction of 90 degrees and was immobilized for forty days in a Böhler splint, after which careful active mobilization was performed. Good results were obtained in other cases from abduction of the arm at 100 degrees with the elbow in extension.

There were 15 cases of noncomminuted diaphysial fractures of the femur. Immobilization with traction was carried out as soon as possible. Traction was obtained either by the Tillaux-Delbet technic with the Kirmisson pulley or by the Böhler technic with a nail in the tibia for transskeletal traction. The leg was placed in normal position on a double inclined plane. Immobilization with plaster cast was applied at the second stage of the operation. This method proved to be of great value. It produces gradual reduction of the fracture with a relatively small force of traction. Pain rapidly diminished. The clinical picture of gas embolism was never observed when this therapy was applied.

In the majority of cases the fractures were due to fragments of grenades or to shells from mortars and were more or less macerated. Primary definitive therapy in the fighting zones was never completed with a primary suture. Any of the following procedures were resorted to: capillary drainage, manual reduction of the fracture and application of a closed cast. Rational immobilization followed. Transskeletal traction was applied to the fracture in 18 cases for a period which varied from fifteen to forty days. Generally speaking, the wounded who were treated with this technic were able to be transported to hospitals far to the rear within ten or fifteen days. The mortality from compound fractures in the posts near the fighting zones was 2.5 per cent. In a group of 236 soldiers with war fractures treated in territorial hospitals, the great majority had been wounded one or two months before arriving at the hospital.

Medical Journals

The *Giornale di Medicina Militare*, which had been published for ninety-two years by the General Department of Military Sanitation, discontinued publication in June 1943. Now it has reappeared. Other medical journals which reappeared after the war are *Experimentale, Archivio di Biologia Normale e Pathologica, Ricerca Scientifica e Ricostruzione, Annali di Medicina Navale* and *Rivista Italiana di Igiene*. Dr. Alessandrini of the Pisa University was appointed editor of the *Rivista Italiana di Igiene* to succeed Dr. Filippe Neri, its previous editor, who died in the Instituto di Igiene of the Bologna University during an aerial attack.

Personal Items

Dr. Siro Fadda was recently appointed surgeon general in Italy. After his appointment he sent a message of salutation to all the members in the medical military service asking for their collaboration in reorganizing postwar military medicine and sanitation.

Colonel Dr. Guido Ferri was recently appointed chief of the School of Military Sanitation in Florence.

The Military Institute of Chemistry and Pharmacy, which was closed because of great destruction and pillage by the Germans, was recently reopened. Every effort is being made to reestablish the departments in which drugs and material for the army are prepared. Col. Giuseppe Scotti was appointed head of the institute.

Deaths

Dr. Giulio Chiarugi died on March 7, 1944. He was born in Siena on Jan. 28, 1859. He obtained the degree of Doctor of Medicine from the University of Turin in 1883. He was appointed regular teacher of anatomy on the Faculty of Medicine of the University of Siena in 1888 and held the same position on the Faculty of Medicine of the University of Florence for forty-one years. He published several books, among them a volume on general anatomy and a textbook on human anatomy which is in its sixth revised edition. He also wrote a textbook on embryology and published articles on the relation between the form of the cranium and the brain and on the structure of bone tissue and the histogenesis of muscular fibrous cells of the heart. Several of Dr. Chiarugi's pupils are now teachers of anatomy and related subjects in Italian universities.

BRAZIL

(From Our Regular Correspondent)

Rio de Janeiro, Dec. 24, 1945.

Specific Rheumatic Fever

Dr. A. Penna de Azevedo, pathologist at the Oswaldo Cruz Institute, has reported a study on the incidence of rheumatic fever in Rio de Janeiro. Without an exact method of diagnosis, several criteria have been employed to ascertain the incidence of the disease. Rheumatic fever produces peculiar and characteristic lesions (Aschoff's nodules) generally associated with characteristic changes in the endocardium (rheumatic endocarditis) which permit better and surer criteria for the recognition of rheumatic fever than the clinical signs. The lesions can be recognized only by pathologic examination of the material, in the majority of instances taken during the performance of necropsies. Dr. Azevedo examined records of 6,700 necropsies accumulated in the files of the division of pathology of the Oswaldo Cruz Institute. By the examination of these records the author looked in some cases for the presence of the characteristic histologic lesion and in the majority of cases for changes in the myocardium, with the exception of those in which there was anatomic suspicion or certainty of syphilis. The incidence rate he found should be considered as the minimum incidence, because among other causes of error is the exclusion of the cases of bacterial endocarditis, which in about 75 per cent of the cases occurs in cardiac valves previously affected by rheumatism.

Of the total of 6,700 necropsies there were 589 cases of endocarditis, which was the cause of death of 8.82 per cent of the patients. According to etiology 417 cases of endocarditis were found to be rheumatic (6.22 per cent of the total necropsies), 106 cases syphilitic (1.58 per cent) and 66 cases malignant or bacterial (0.98 per cent). The 417 cases of rheumatic endocarditis (70.79 per cent of all cases of endocarditis) are distributed as 396 cases of valvular endocarditis (94.96 per cent) and 21 cases of mural endocarditis (5.04 per cent). Of the 417 cases of rheumatic endocarditis there were 247 in males (59.23 per cent) and 170 in females (40.77 per cent); there were 209 in white persons (50.12 per cent) and 208 in colored (49.88 per cent); there were 341 cases in Brazilian born persons (81.77 per cent) and 76 in foreign born (18.23 per cent). In the age distribution of 373 cases of rheumatic endocarditis it is significant to note that from ages 20-29 years there were 64 cases (17.16 per cent), 30-39 years 79 cases (21.18 per cent), 40-49 years 58 cases (15.55 per cent) and 50-59 years 57 cases (15.28 per cent), with 20 per cent of the cases occurring over the age of 60 years.

Courses and Lectures

Dr. Oswaldo Camargo, who recently returned from the United States, read a paper at the Hospital de Psiquiatria Infantil (a children's psychiatric hospital) presenting the modern features of psychiatric medical care in the United States.

Dr. Cyro de Rezende, associate professor of ophthalmology at the University of São Paulo, is now giving a special course of lectures and practical demonstrations on ocular neurology.

The University of São Paulo has announced two special courses in psychiatry to be given during the summer session (January and February) by Dr. Annibal Silveira, associate professor of psychiatry, and Drs. Darcy M. Uchoa and Paulo Lentino, physicians of the Juquery Psychiatric Hospital. Both these courses will be given at the Sanatorio Esperança.

Dr. Franklin de Moura Campos, professor of physiology at the University of São Paulo, recently read three papers in the auditorium of the medical department of the Food Relief Service of the Ministry of Labor in Rio de Janeiro. The first one was on the deficiency of certain special proteins, the second on special subjects of the physiopathology of nutrition and the third on the nutritive value of several foodstuffs peculiar to northern Brazil.

Brief Items

The second Pan American Congress of Ophthalmology, recently held in Montevideo, Uruguay, awarded a prize medal and an honor diploma to the administration of the city of Rio de Janeiro because of the distinguished services rendered by the Department of Hospitals in the field of ophthalmology. Dr. Joaquim Vidal, the representative of the department at the meeting, accepted the medal and the diploma.

The São Paulo chapter of the Brazilian Red Cross has opened a child welfare clinic in the city of São Paulo. The clinic is well organized and is provided with the best equipment.

The Rio de Janeiro Medical and Surgical Society recently commemorated its fifty-ninth anniversary. At a special meeting under the chairmanship of Dr. Joaquim Motta the society awarded several prize medals in commendation of the presentation of noteworthy papers on subjects of medicine and surgery. The prizes were awarded to Drs. A. Campos de Paz Filho, Americo Valerio and Aurelio Monteiro, who presented papers respectively on tubal sterility, vitamin A in the diet of air pilots and the Sloane technic in the treatment of feminine genital prolapse.

Personal

A telegram from Washington announced the arrival in that city of Dr. F. Godoy Moreira, orthopedic surgeon of São Paulo, who went to the United States as a guest of the State Department. Dr. Moreira will be present at the meeting of orthopedic surgeons in January 1946.

Dr. Charles Wagley, head of the Division of Health Education of the Special Service of Public Health, resigned this post and left for the United States to resume his work as professor at Columbia University. Dr. Wagley will continue to be associated with the SESP as a technical adviser.

Dr. J. Vieira Filho, who had been an active dermatologist at the Beneficencia Portugueza Hospital of this city, died at the age of 68. Although a Brazilian citizen, Dr. Vieira Filho graduated in medicine from the University of Porto, Portugal, and had worked for some time in Paris, France. He wrote several papers on subjects of dermatology and leprology.

Marriages

Francis Curie Skilling, Key Field, Miss., to Leona Marie Mazzoni, Lieut., Nurse Corps, Army of the United States, at Drums, Pa., December 3.

Robert E. McAlpine, Portsmouth, Va., to Miss Elizabeth Overton of Martinsville at Charlottesville, November 24.

Allie McLeod Stanton, Sylacauga, Ala., to Miss Margaret Elizabeth Spires of Edenton, N. C., December 14.

Thomas Joseph Sheehy Jr., Augusta, Maine, to Dr. Adelaide Therese Scanlon of New York recently.

Robert Nerces Armen, Ithaca, N. Y., to Miss Eleanor Beatrice Baxter at Danville, Calif., November 4.

Sue Hurst Thompson, Hudson, N. Y., to Mr. Edward Henry Gould of New York, November 3.

Frank A. Benchik, East Chicago, Ind., to Miss Audrey Toussaint of St. Louis, November 19.

Walter E. Nawrocki, Cle Elum, Wash., to Miss Helen W. Zbikowski in Bristol, Conn., recently.

Glea V. Stanton, Limestone, Tenn., to Miss Mildred Kathleen Cox in Newport recently.

Cliff Ratliff Jr., Morven, N. C., to Miss Helen Jane Shaffer in Aberdeen, December 3.

James Louie Smith, Magnolia, Ark., to Miss Dede Dabbs of Gulfport, Miss., October 25.

Caryl Potter Jr. to Mrs. Patricia Blakeslee Davison, both of New York, October 11.

Henry P. Royster, Philadelphia, to Miss Ethel R. Fisher of Reedsville, Pa., recently.

Eugene J. Boyd, Iowa City, to Miss Mabel Pullman of Centerville, October 13.

Correspondence

RELATION OF MENSTRUAL TOXIN TO ECLAMPSIA

To the Editor:—That you considered our investigations on menstrual toxin in relation to preeclampsia and eclampsia worthy of comment (THE JOURNAL, Nov. 17, 1945, p. 805) is gratifying. The title, "Menkin's Antinecrosin (Eclampsia Antitoxin)," is misleading. Dr. Menkin has demonstrated no antitoxic activity in antinecrosin serum. The fact that the serum of rabbits injected repeatedly with canine necrosin gives positive precipitin tests against this material (*Proc. Soc. Exper. Biol. & Med.* **56**:217 [June] 1944) is of no significance in this connection, since there is no preparation of necrosin free of other proteins. It was shown to Dr. Menkin in this laboratory that canine necrosin antiserum has as high a precipitin titer against normal dog serum as it has against canine necrosin. We had previously found (*Proc. Soc. Exper. Biol & Med.* **44**:100 [May] 1940; **55**:285 [April] 1944) that rats and rabbits could be made resistant to the toxicity of menstrual discharge and that transferable immunity was demonstrable. Such immune serum, however, could not be used in human beings because, our preparations of menstrual toxin being also mixtures of proteins, there would be the danger of reactions from antibodies to human proteins other than the toxic factor. Because we suspected that Menkin's pleural exudates and menstrual discharge contained the same toxic component, we had hopes that antiserum to necrosin of canine origin might have therapeutic possibilities against menstrual toxin without introducing this danger. Unfortunately, as pointed out in our publication (an item overlooked in the editorial), although menstrual toxin antiserum prolonged the survival time of rats given a minimal lethal dose of either menstrual toxin or canine necrosin, we were unable to get consistent results in attempts to demonstrate similar protective action with necrosin antiserum. The editorial wrongly suggests that it, as well as menstrual toxin antiserum, was effective against multilethal doses of toxin.

The principal value of necrosin antiserum proved to be that it provided a means, by cross precipitin tests, of establishing the fact that menstrual toxin and necrosin contained an identical protein and of demonstrating the presence of this same protein in the circulating blood of menstruating and toxemic women. Furthermore, these findings strengthened our hypothesis that the toxic protein might be a product of tissue damage in general and not just a "specific autolytic product of endometrial cells." We did not, as erroneously intimated in the editorial, demonstrate any higher precipitin titer in eclampsia than during menstruation, although we did find a greater concentration of fibrinolytic enzyme in preeclamptic and eclamptic serum.

The most promising lead from a therapeutic aspect lies in our finding of a protective substance against the "toxin" in the pseudoglobulin fractions of the human pleural exudates that we have tested and of the venous serum of menstruating or eclamptic patients. Such preparations consistently prolong the survival time of rats given a minimal lethal dose of menstrual toxin and often completely prevent death. They have the added advantage of being derived *directly* from human material and should therefore be comparatively safe to administer to human beings. We are at present attempting to prepare a concentrate of such material from which all elements of danger are removed.

O. WATKINS SMITH, PH.D.
GEORGE V. SMITH, M.D.,
Fearing Research Laboratory,
Free Hospital for Women,
Brookline, Mass.

RECURRENT HEADACHE IN MALARIA

To the Editor:—In the January 5 issue of THE JOURNAL Comdr. Frederick A. Butler (MC), U.S.N., takes issue with some of my statements in the report on Recurrent Headache Resultant from Malarial (THE JOURNAL, Oct. 27, 1945, p. 612). There was nothing in my report which implied any danger or likelihood of a significant outbreak or increase of malaria in the United States. It simply stressed that quiescent and recurrent cases of malaria will be encountered more frequently as more men who were stationed during part of their duty on malarious islands return from the Pacific area. This is to be expected, for we know that neither atabrine nor quinine cures the disease; they only suppress it.

We know further that recurrent attacks of malaria are often precipitated by acute infections, exhaustion, malnutrition and alcoholism. Recurrent headache is usually the first and most distressing symptom to usher in an attack of malaria.

The main point of my report was only to emphasize that malaria is a "great imitator" and should be included with greater frequency in the differential diagnosis of recurrent headache.

In our experience on Guam we found the provocative measure of the administration of 15 grains (1 Gm.) of quinine or ephedrine 2 minums (0.12 cc.) subcutaneously surprisingly helpful in establishing the diagnosis of malaria when smears were negative previously. It is not assumed that those who did not respond to the provocative test did not have malaria, no more than it can be assumed that a negative blood Wassermann reaction rules out syphilis.

ABRAHAM KAPLAN, Captain (MC), U.S.N.R.

Bureau of Investigation

SOME MISCELLANEOUS MEDICAL FRAUDS

A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following are brief abstracts of some fraud orders *not* dealt with previously:

Salvar Medicine Company.—This St. Louis concern is said to have been started in June 1906 by a Charles E. Gallagher, a civil engineer, who previously had run a "patent medicine" outfit in Kansas City, Mo., selling a nostrum called "Alkano." In 1908, it is reported, the St. Louis firm took the name "Salvar Medicine Company of Arizona" and established agencies in various cities. Around 1921, it appears, an Edward L. Eggers joined the business as "medical director," and became the proprietor in 1923. According to the records, he was licensed to practice medicine in Missouri in 1900 and was said to have claimed graduation from the *St. Louis College of Physicians and Surgeons.* This institution was involved in the "diploma mill" scandal of 1923 and 1924, and its charter was revoked in 1927. A John E. Eggers, said to be a brother of Edward L. Eggers, is reported to run the Newell Pharmacal Company of St. Louis and Clayton, Mo., which puts out another nostrum, "Tobacco Redeemer." Through the mails the Salvar concern, sometimes known as the Gallagher Medicine Company, sold its "Salvar" and, for a time, boldly claimed. "Salvar Remedy will cure syphilis perfectly, positively and permanently in any stage of the disease, even though the bones themselves are rotten." It was also promoted for rheumatism, chronic constipation, catarrh, malaria, diseases of the liver, kidneys and bladder, female disorders, tuberculosis, heart ailments, and some other things. Finally the Post Office Department caught up with this quackery and, after due investigation, notified the promoters to show cause why a fraud order should not be issued against them. In reply, Edward L. Eggers denied having made "false or fraudulent representations or promises," and declared that he had discontinued the sale of Salvar and the practice of medicine by mail, had "closed up" his business and accordingly urged that no fraud order be issued against him. Neither he nor anyone representing him, however, attended the hearing of the case, held in Washington on August 9, 1943. At that time a government chemist testified that his analysis of the Salvar specimen purchased from the company by mail showed it to be a solution consisting of water and 30.2 per cent of alcohol, the rest being essentially berberine, acid chloroform extract, cascara, tannin, invert sugar, podophyllum, guaiac, echinacea (or bloodroot, or both), iodine, spearmint, sarsaparilla, possibly eucalyptus, and traces of mineral matter. An expert medical witness testified for the government that he was familiar with all these ingredients and their effects; that the chief action of the mixture would be laxative because of the podophyllum and cascara present, and that the only other drug worth mentioning was iodine, and the amount present was insufficient to constitute a therapeutic dose. He further pointed out that the diet and hygiene suggestions sent out with the nostrum were irrelevant, and showed the worthlessness of Salvar in syphilis and the other disorders mentioned. A fraud order accordingly was issued on Nov. 23, 1943, against the Salvar Medicine Company and Edward L. Eggers.

Natural Health Institute.—This enterprise was conducted at Rocky Mount, N. C., by a "Dr." J. Lewis Clinton, a chiropractor and author of so-called health writings. Further, he published two booklets, "Radiant Health Through Normal Elimination" (27 pages) and "Energy Unlimited" (58 pages). These were advertised by means of a circular entitled "Your Health!" The Post Office Department charged that these booklets were misleading and that the sale of them through the mails constituted a fraud on the public. Clinton, however, was given opportunity to appear at a hearing and show cause why a fraud order should not be issued debarring his business from the mails. A Senior Medical Officer for the Food and Drug Administration who appeared as a witness for the government at the hearing testified as to the factors causing constipation, which condition was the subject chiefly dealt with in the first-named booklet. He pointed out that Clinton's pre-sale allegations that his advice would enable patrons to "free" themselves from enemas, laxatives and other "adjuncts" contrasted with his suggestion in the book that if the methods he advocated (going to stool preferably after breakfast and massaging the lower part of one's abdomen in a certain way) failed to work, a mild laxative should be employed or a soapsuds enema used. It was further pointed out that though his pre-sale representation was that "no dieting" and "no exercises" would be required, both dietary suggestions and exercises are included in his book. The witness further showed that different cases of constipation require varying methods of treatment. As to the book "Energy Unlimited," the leaflet advertising it called it "one of the biggest surprises in the health book field, and utterly unlike anything you have ever read," in which "Dr. Clinton presents conclusive evidence to show that chronic fatigue, nervousness, sleeplessness and associated symptoms of nerve exhaustion are not due so much to a lack of energy itself, but to a lack of proper transmission and expression of energy . . . to tensions and 'short-circuits' which squeeze the nerves and decrease the flow of energy. . . ." The government's expert medical witness testified that the symptoms mentioned above are those of practically all diseases; that Clinton's theory of nerve pressure was a distorted one, and that the diet prescribed in his book for the purpose of forming an alkaline balance in the system is diametrically opposed to that of taking exercise (which Clinton also advocated), since exercise tends to produce an acid condition as opposed to the alkaline-forming diet. Although Clinton did not appear at the hearing, he filed an answer to the foregoing testimony, in which, however, he offered no evidence of the efficacy of the measures recommended in the two booklets mentioned. He did deny any intention to defraud. Nevertheless, the Post Office Department held that the charges against him were entirely sustained by the evidence, and recommended a fraud order debarring him from the mails. This was issued August 14, 1944, against the Natural Health Institute, "Your Health!", "Dr." J. Lewis Clinton, editor and publisher, and W. M. Vandiford, publications department, as well as their officers and agents.

Mary Ries Melendy Ostine Company.—This concern, whose address was Stillwater, Minn., apparently was an outgrowth of the business that was started years ago in Chicago by Mary Ries Melendy, M.D., a homeopathic physician who died in 1927. Some time thereafter the business seems to have been transferred to Stillwater, Minn., by her son, Charles E. Ries. After an investigation, the Post Office Department notified the company and Charles E. Ries, Distributor, to show cause why a fraud order should not be issued against them. Ries did not appear at the hearing of the case held in Washington, but filed a written answer in which he claimed to be a registered pharmacist but for seventeen years engaged in selling through the mails certain homeopathic remedies made in accordance with prescriptions of his mother, who had sold them to her patients for about fifty years. A chemist and a microanalyst of the Food and Drug Administration testified for the government at the hearing, showing that "Dr. Melendy's Brain and Nerve Food" consisted essentially of 98.6 per cent of milk sugar, with traces of calcium, iron, sulfate and phosphate; that "Balm Palmetto Female Tonic" was 99.5 per cent milk sugar, and the remainder moisture and traces of iron, calcium, phosphate, possibly magnesium and minute traces of other minerals. The "Balm Palmetto Capsules" were reported to consist of some greasy material with an odor of cocoa butter, in which was a small amount of plant material, including hydrastis, together with ½ grain of iodine per capsule, combined probably as a sodium salt, and perhaps some saw palmetto, and the "Balm Palmetto Cerate" was found to be a yellowish ointment consisting of 98.2 per cent of petrolatum and 1.8 per cent of moisture. These witnesses further testified that "No. 1 Tokoine" was a mixture of coarsely ground herbs, chiefly coltsfoot leaves, with much smaller amounts of catnip herb, black snakeroot and an unidentified leaf, and that "No. 2 Tokoine" consisted of very finely ground lobelia herb. The Tokoine combination was represented to eliminate pain in childbirth. "Tri-Cura," for rectal disorders, was shown to consist of capsules apparently containing cocoa butter, a small amount of plant material, including hydrastis, and a trace of iodine. "Ostine No. 1," which a pamphlet declared was a "cure" for various disorders in children, was, the witnesses reported, a white powder consisting essentially of 98.4 per cent of milk sugar, with traces of calcium and insoluble material, probably silica, whereas "Ostine No. 2" for "developing" growing children, was found on analysis to be a white powder containing about 98.7 per cent of milk sugar, with traces of calcium, iron and phosphate. An expert medical witness for the government testified as to the worthlessness of these various nostrums in the conditions for which they were advertised, and the business was declared by the Post Office Department to be a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. Accordingly, a fraud order was issued on Oct. 23, 1944, against the Mary Ries Melendy Ostine Company, Charles E. Ries, Distributor, and Charles E. Ries, the individual.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Osteopaths: Rights Under E. M. I. C. Program.—An act of Congress, chapter 221, Public Law 135, known as "Labor-Federal Security Appropriations Act, 1944" under the subtitle "Maternal and Child Welfare" provided for the grant of money to states for emergency maternity and infant care for the wives and infants of certain enlisted men and aviation cadets in the armed forces of the United States. The use of federal funds received by any state was made subject to the following restriction:

> . . . Provided, That no part of any appropriation contained in this title shall be used to promulgate or carry out any instruction, order or regulation relating to the care of obstetrical cases which discriminates between persons licensed under state law to practice obstetrics: Provided, further, That the foregoing proviso shall not be so construed as to prevent any patient from having the services of any practitioner of her own choice, paid for out of this fund, so long as state laws are complied with.

In both Wisconsin and Texas the plans submitted by the state board of health and subsequently approved by the Children's Bureau eliminated osteopaths from receiving payment for services out of funds made available for the E. M. I. C. program by requiring that the physicians furnishing the services be graduates of a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association. In Wisconsin the osteopaths protested by filing an action asking for a declaratory judgment as to the validity of the state plan. From an order overruling the defendants' demurrer, the state board of health appealed to the Supreme Court of Wisconsin. In Texas, a few months later, the osteopaths filed suit for an injunction to restrain the state board of health from operating under its plan until it had been so amended as to permit osteopaths to participate. From a judgment for the plaintiffs, the defendant appealed to the court of civil appeals, Austin, Texas.

In Wisconsin the state board of health demurred on the ground that the complaint did not state a proper case for declaratory relief. The Supreme Court said that the allegations were

> solely concerned with the proper distribution of federal funds by a federal administrative board, through the Wisconsin state board of health acting as its agent. The several appropriations made by Congress to carry out the E. M. I. C. program were all made to the United States Department of Labor, Children's Bureau, which bureau allots the funds to the several states to carry out the program according to plans approved by the federal bureau. That puts this controversy out of our reach. No facts are alleged in the complaint to the effect that any osteopath has been deprived of the right to practice obstetrics or that any such action has been threatened. Neither is any declaration demanded along this direction. The pleadings, therefore, state no cause of action for declaratory relief on this point. . . .

Accordingly the judgment in favor of the osteopaths was reversed and an order entered sustaining the defendant's demurrer.

In Texas the state board of health contended that the state courts lost jurisdiction of this case because of the rule that

> In the absence of Congressional sanction, state courts cannot entertain suits against the United States or its agencies, including corporations created by the national government, and are without jurisdiction to control or restrain the official conduct of federal officers or agents, federal courts having exclusive jurisdiction over such suits. (21 C. J. S. 796.)

This appropriation act, said the court of appeals of Texas, does not sanction or authorize state courts to entertain suits with respect to any matter arising thereunder. Under such appropriation act the members of the state board of health are not acting as state officials but merely as the agency of the federal government through which the appropriation is to be expended. The act does not authorize the members of the state board of health to receive or administer any portion of the funds appropriated and allotted to Texas, the court continued, except under a plan approved by the chief of the Children's Bureau. The record in this case showed that the Children's Bureau in fact outlined the plan for the administration of the fund allotted to Texas and approved such plan as required by the act. Neither the act nor any Texas statutes undertake to authorize the members of the state board of health to act in any manner except as an agency of the federal government in administering the federal fund appropriated by the Congress to aid in the care of wives and infants of certain enlisted men The court then quoted with approval the statement quoted from the Wisconsin decision and in reference to such quotation said that

> The foregoing quotation from the Hecker case overruled the contention of appellees that the Congress under the appropriation act in question, leaves the development and setting up of the plan for the disbursement of the funds wholly to the state health agencies The Act provides that the state health agencies must adopt rules for the distribution of the funds, and who may participate in care of the wives and infants of soldiers and sailors but expressly provides that such rules and plans must be approved by the Children's Bureau at Washington, and, as was said in the Hecker case, 'it was the approval of the plan by the federal bureau that gave the E M I C program its vitality "

Accordingly the judgment in favor of the osteopaths was reversed and the injunction dissolved—*Hecker v Gunderson, 15 N. W (2d) 788 (Wis, 1944), State Board of Health v Wilson, 188 S W (2d) 999 (Texas, 1945)*

Constitutionality of Illinois Medical Practice Act Sustained.—An information in four counts charging violation of the medical practice act was filed against the defendant From a judgment of guilty he appealed to the Supreme Court of Illinois

The only errors assigned related to the constitutionality of the medical practice act, the defendant's first argument being that the medical practice act violates section 13 of article IV of the constitution of the state of Illinois in that it embraces more than one subject The title of the act is "An Act to revise the law in relation to the practice of the treatment of human ailments for the better protection of the public health and to prescribe penalties for the violation thereof" It is urged that the sections of the act which regulate the practice of midwifery deal with a subject other than the "treatment of human ailments for the better protection of the public health" It is universally recognized, said the Supreme Court, that insanitary and improper methods employed by those engaged in the practice of midwifery are often followed with serious results to the health of the mother and child The regulations provided in the act are for the protection of health and within the title of the act The constitutional question pleaded does not furnish the semblance of a debatable issue

The defendant next argued that the medical practice act violates the due process clause of the constitution in that it forbids the doing of certain things which are not the subject of regulation The defendant referred to section 2 of the act providing that no person shall engage in the practice of medicine or midwifery without being licensed as provided by statute Emphasis is placed on the designation "no person" and it is urged that such an all inclusive term prohibits any one not licensed from ministering simple home remedies to minor ailments Section 2, said the court, must be considered in the light of the other sections and the purposes sought to be accomplished by the whole enactment When so considered the contention made appears frivolous The defendant was convicted for a violation of section 24, which specifies the elements of the offense, a part of which is a holding out to the public as being engaged in diagnosis or treatment of ailments of human beings, suggesting, recommending or prescribing treatment for relief of ailments, all with the intention of receiving directly or indirectly a fee or reward therefor It is clear, the court concluded, that the act is not subject to the criticism directed against it

Finally the defendant argued that the act is vague and meaningless and directs an administrative board to do certain things without furnishing a standard for its guidance The court's attention was directed to that part of section 3 which provides that no person, subject to certain exceptions, shall hereafter receive a license unless he shall pass an examination, etc, satisfactory to the department, and to section 4, which requires each applicant for license to submit certain proof under oath "satisfactorily to the Department" The court said that not only had the validity of the medical practice act been sustained against attack from various angles in prior decisions but objections similar to those made by defendant had been decided adversely to his contention in a number of prior cases (citing them) Accordingly the Supreme Court affirmed the judgment of guilty —*People v Zimmerman, 63 N E (2d) 850 (Ill, 1945)*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Board in Specialties were published in The Journal, *Feb 2, page 305*

BOARDS OF MEDICAL EXAMINERS

Alabama Mar 19 21 Sec Dr B F. Austin, 519 Dexter Ave, Montgomery 4

Alaska Juneau, March 5. Sec, Dr W. M. Whitehead, Box 140, Juneau

Arizona * *Examination* Phoenix, April 2 3 *Endorsement* Phoenix, April 6 Sec, Dr J H Patterson, 826 Security Bldg, Phoenix

Arkansas * *Medical* Little Rock, June 6 7 Sec, Medical Board of the Arkansas Medical Society, Dr L J Kosminsky, Texarkana *Eclectic* Little Rock, June 6 Sec, Dr C H Young, 1415 Main St, Little Rock

California *Written* Los Angeles, March 11 14 Sec, Dr Frederick N Scatena, 1020 N St, Sacramento 14

Colorado * Denver, April 2 5 Final date for filing application is March 18 Sec, Dr J B Davis, 831 Republic Bldg, Denver

Connecticut * *Medical Examination* New Haven, March 12 13 *Endorsement* New Haven, March 26 Sec to the Board, Dr Creighton Barker, 258 Church St, New Haven *Homeopathic* Derby, March 12 13 Sec, Dr Joseph H Evans, 1488 Chapel St, New Haven

Delaware *Examination* Dover, April 9 *Reciprocity* Dover, April 16 Sec, Medical Council of Delaware, Dr J S McDaniel, 229 S State St Dover

District of Columbia * *Reciprocity* Washington, March 11 Sec, Commission on Licensure, Dr G C Ruhland, 6150 L Municipal Bldg, Washington 1.

Florida * Jacksonville, June 24 25 Sec, Dr. Harold D Van Schaik, 2736 S W Seventh Ave, Miami 36

Georgia Atlanta and Augusta, March 27 28 Sec, State Examining Boards, Mr R C Coleman, 111 State Capitol, Atlanta 3

Idaho Boise, July 9 Dir, Bureau of Occupational Licenses, Miss
pitol Bldg, Boise
hicago, April 2 3 *Reciprocity* Chicago,
Department of Registration & Education,
l 25 27 Sec, Board of Medical Registration & Examination, Dr W C Moore, 301 State House, Indianapolis 4

Iowa * Iowa City March 25 27 Dir, Division of Licensure & Registration, Mr H W Grefe, Capitol Bldg Des Moines 19

Kansas Kansas City, March 12 13 Sec Board of Medical Registration and Examination, Dr J F Hassig 905 N Seventh St, Kansas City 10

Kentucky Louisville, March 25 27 Sec State Board of Health, Dr Philip E Blackerby, 620 S Third St, Louisville 2

Maine Portland, March 12 13 Sec, Board of Registration of Medicine, Dr A P Leighton, 192 State St, Portland

Massachusetts Boston, March 12 15 Sec, Board of Registration in Medicine, Dr H Q Gallupe, 413 F State House, Boston

Michigan * Detroit, March 26 28 Sec, Board of Registration in Medicine Dr J E McIntyre 100 W Allegan St Lansing 8

Mississippi June Asst Sec, State Board of Health Dr R N Whitfield Jackson 113

Missouri *Examination* St Louis, Feb 25 27 Sec, State Board of Health Dr R M James, State Capitol Bldg Jefferson City

Montana Helena, April 1 3 Sec, Dr O G Klein First National Bank Bldg, Helena

New Jersey Trenton, June 18 19 Sec, Dr E S Hallinger, 28 W State St, Trenton

New Mexico * Santa Fe April 8 9 Sec, Dr LeGrand Ward, 141 Palace Ave Santa Fe

New York Jan 28 31 Sec, Dr Jacob L Lochner, Education Bldg Albany

North Carolina Raleigh March 25 28 Act Sec, Mrs Louise J McNeill, 2

North ly 2 5 Sec, Dr G M Williamson
4½ S Th

Ohio March 19 22 Sec, Dr H M
Platter, 21

Oklahoma * rch 23 Sec Dr J D Osborn Jr
Frederick

Pennsylva Pittsburgh, April Act Sec, Bureau
of Profession of Public Instruction, Mrs M G
Steiner, 351 isburg

Rhode Isl 5 Chief Division of Examiners,
Mr Thomas Bldg, Providence

South Car 4 26 Sec, Dr N B Heyward,
1329 Blanding St Columbia

South Dakota * Pierre, July 16 17 Sec, Medical Licensure, State Board of Health, Dr Gilbert Cottam Capitol Bldg Pierre.

Tennessee * Memphis and Nashville March 27 29 Sec, Dr H W Qualls 130 Madison Ave, Memphis 3

Texas Austin March 27 29 Sec, Dr T J Crowe 918 20 Texas Bank Bldg Dallas 2

Vermont Burlington March or April Sec, Dr F J Lawliss Richford

Virginia * Richmond March 25 28 Sec, Dr J W Preston 803 Medical Arts Bldg Roanoke

Wyoming Cheyenne Feb 4 Sec, Dr G M Anderson, Capitol Bldg Cheyenne

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* Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Connecticut Feb 9 Address State Board of Healing Arts, 250 Church St, New Haven 10

Florida Gainesville, June 4 Final date for filing application is May 20 Sec Dr J F Conn, John B Stetson University, DeLand

Oregon Portland, March 2 Sec, Board of Higher Education, Mr C D Byrne, University of Oregon, Eugene

Rhode Island Providence, Feb 13 Chief, Division of Examiners Mr Thomas B Casey, 366 State Office Bldg, Providence

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Psychiatry, New York

102:145-288 (Sept.) 1945. **Partial Index**

Prolonged Posttraumatic Syndromes Following Head Injury. J. Ruesch and K. M. Bowman.—p. 145.
Conjectured Correlation Between Depressions of Manic Depressive and Involutional Melancholic Types and Ethnic Elements in Present Day Population of Britain. R. Gibson.—p. 164.
What Happens to Patients Who Are Hospitalized for First Time When over Sixty-Five Years of Age. O. Camargo and G. H. Preston.—p. 168.
Memory Function: I. Factorial Study of Fifteen Clinical Tests. H. J. Eysenck and H. Halstead.—p. 174.
Clinical Note on Significance of Validity Score (F) in Minnesota Multiphasic Personality Inventory. A. T. Kazan and I. M. Sheinberg.—p. 181.
Bilateral Internal Jugular Blood: Comparison of A-V Differences, Oxygen-Dextrose Ratios and Respiratory Quotients. Erna L. Gibbs, W. G. Lennox and F. A. Gibbs.—p. 184.
Presenile Dementia (Alzheimer's Disease): Its Pathogenesis and Classification, with 2 Case Reports. K. Stern and G. E. Reed.—p. 191.
Saint Vincent de Paul—Saint Louise de Marillac and Their Daughters: Their Care of the Insane. Mary E. Walsh.—p. 198.
Marihuana, an Intoxicant. H. S. Gaskill.—p. 202.
Neuropsychiatric Problems at an Aleutian Post. G. C. Burns.—p. 205.
Statistical Study of 100 Neuropsychiatric Casualties from Normandy Campaign, with Control Material. W. Needles.—p. 214.
Problem of Severe Psychoneurotic in Army Air Forces. J. W. Bick Jr.—p. 222.
*Sociologic Factors in Patients in Army Neurosis Center and Their Relation to Disciplinary Actions. P. V. Lemkau and F. E. Kent.—p 231.
Two Different Types of Posttraumatic Neuroses. A. Adler.—p. 237.
Incidence of Nail Biting Among Adults. L. A. Pennington.—p. 241.
Fraternity in Combat. D. E. Johnson and J. T. Thickstun.—p. 245.
Young Delinquent. Doris Chaplin.—p. 257.
Psychoses Among Women Government Workers in Wartime. H. Stevens.—p. 260.

Sociologic Factors in Neurosis.—Lemkau and Kent review 968 cases admitted to an army neurosis center. They found that normal homes produce a significantly smaller proportion of military delinquents than broken homes. While there is an apparent tendency for the homes with inadequate finances to produce a larger proportion of military delinquents, this is statistically not significant. Patients with an urban background are somewhat more likely to be military delinquents than those of rural background. Military delinquency is not significantly related to marital status in this group of patients. Men who have held but one job before entering the service are less likely to become military delinquents than men who have badly disorganized work histories.

American Review of Tuberculosis, New York

52:269-354 (Oct.) 1945

*Streptomycin in Experimental Tuberculosis. W. H. Feldman, H. C. Hinshaw and F. C. Mann.—p. 269.
*Streptothricin in Experimental Tuberculosis. W. H. Feldman and H. C. Hinshaw.—p. 299.
Chemotherapy of Sulfones and Sulfonamides in Experimental Tuberculosis. M. I. Smith and W. T. McClosky.—p. 304.
Anatomic Studies on Human Tuberculosis: XIX. Protracted Primary Tuberculosis in the Adult, with Some Observations on "Lymphoglandular-Endogenous Reinfection (Ghon)." K. Terplan.—p. 312.
Eosinophilia in Silicosis. W. J. Habeeb.—p. 337.
Tuberculosis of Tongue. L. L. Titche.—p. 342.
Founders of National Tuberculosis Association. R. G. Paterson.—p. 345.

Streptomycin in Experimental Tuberculosis.—Feldman and his co-workers report three experiments on guinea pigs, the first two being of short duration, the third extending over a 215 day period. In the latter, guinea pigs were inoculated with Mycobacterium tuberculosis forty-eight days before treatment with streptomycin was started. The animals received 6,000 units of streptomycin daily divided into four equal doses. The treated group consisted of 25 guinea pigs, while the group of untreated controls totaled 24 animals. When the experiment was terminated after 166 days of treatment, 17 of the untreated animals had died, compared to 2 of the group that had received streptomycin. Nearly all of the untreated controls showed at necropsy severe, widely disseminated tuberculosis while the tuberculous disease among the animals that had been treated was minimal. Thirteen of the treated animals had no tuberculosis grossly or microscopically. Nine of the treated animals living when the experiment was terminated gave a negative reaction to tuberculin. The authors conclude that streptomycin was effective in resolving or suppressing established experimental tuberculous infection in guinea pigs. The streptomycin preparations used had a low toxicity for guinea pigs in doses of 6,000 units per day and were tolerated without recognizable deleterious effects for a prolonged period. Although capable of combating or preventing anatomic changes due to Mycobacterium tuberculosis, streptomycin in most instances exerted a suppressive rather than a sterilizing effect on the infective agent. In some instances successful treatment with streptomycin resulted in the reversal of a positive sensitivity to tuberculin. Larger doses and more frequent administration of streptomycin might have enhanced the bacteriostatic effects. The striking effects of streptomycin in reversing a potentially lethal tuberculosis in the highly susceptible guinea pig and the low toxicity and corresponding safety of purified streptomycin are prerequisites of a drug worthy of clinical trial.

Streptothricin in Experimental Tuberculosis.—Feldman and Hinshaw tested streptothricin in experimental tuberculosis in guinea pigs. The streptothricin available and in the dose used was poorly tolerated by large, previously vigorous guinea pigs. Seven of the 10 guinea pigs treated with streptothricin died during sixty-one days of observation. Unlike streptomycin, which has a high therapeutic potential in tuberculosis of guinea pigs, streptothricin proved devoid of deterrent qualities that would suggest antituberculosis effects.

Archives of Internal Medicine, Chicago

76:131-188 (Sept.) 1945

*Etiology and Pathogenesis of Rheumatic Fever. L. A. Rantz, P. J. Boisvert and W. W. Spink.—p. 131.
Characteristic Vascular Pattern in Patients with Rheumatoid Arthritis. M. Naide, Ann Saÿen and B. I. Comroe.—p. 139.
Gallbladder Dye (Iodophthalein Sodium): Effect of Intravenous Injections on Coronary Flow, Blood Pressure and Blood Coagulation. F. E. Lawson.—p. 143.
Changes in the Central Nervous System Associated with Encephalitis Complicating Pneumonia: I. Clinical Study. A. B. Baker and H. H. Noran.—p. 146.
*Putrid Pulmonary Abscess Without Foul Sputum (Shut-Off Pulmonary Abscess). D. Stats and H. Neuhof.—p. 154.
Sulfonamide Compounds and Penicillin: Effect of Combined Therapy on Experimental Infections in Mice. E. H. Sultan, D. W. Jenkins and W. C. Cutting.—p. 161.
Tularemic Meningitis: Review of Literature and Report of Case, with Postmortem Observations. B. M. Stuart and R. L. Pullen.—p. 163.
Intravenous Injection of Acacia: Clinical and Physiologic Effects on Patients with Nephrotic Edema. J. B. Johnson and L. H. Newman.—p. 167.
Recurrent Meningoencephalitis Due to Virus of Lymphogranuloma Venereum. D. W. Scott Jr.—p. 174.

Etiology and Pathogenesis of Rheumatic Fever.—Patients discovered to have a hemolytic streptococcus infection in army camps were transferred to special wards and were studied by means of a variety of laboratory procedures. Cultures were made repeatedly from the nose and throat, and the isolated hemolytic streptococci were classified serologically by the precipitin technics of Lancefield. Serial white blood cell counts, erythrocyte sedimentation rates (Westergren) and electrocardiograms were obtained. Each patient was studied for not less than three weeks and frequently for a longer period. During the period of intensive study, from Jan. 1 to April 15, 1944, approximately 1,500 patients were observed. As the basis for further investigation, Rantz and his associates point out (1) that rheumatic fever is invariably induced by infection with group A hemolytic streptococci, (2) that this syndrome is but a part of the whole complex involved in the poststreptococcic state, (3) that these clinical manifestations are the result of altered sensitivity of the tissues to products of the hemolytic streptococcus and (4) that repeated infection with different types of hemolytic streptococci may be necessary for the development of these disorders. If this working hypothesis is acceptable, it would appear (1) that sensitivity of the tissues must occur to some fraction or product of the hemolytic streptococcus and (2) that this fraction or product must be common to all types of group A streptococci It would seem desirable to obtain these substances in highly purified form and to determine whether they have induced the formation of circulating antibodies and whether the tissues of rheumatic persons are sensitive to them. Such an investigation might lead to technics which would permit the determination of dangerous streptococcus hypersensitivity and to possible preventive or therapeutic measures.

Putrid Pulmonary Abscess Without Foul Sputum.—Stats and Neuhof report instances of acute putrid pulmonary abscess without foul sputum. They have termed this variety "shut-off abscess" on the assumption that the bronchus communicating with the abscess is occluded as a result of an inflammatory reaction and cannot drain the contents of the abscess. The shut-off pulmonary abscess has a tendency to invade the pleura. The presence of such an abscess should be considered when (1) a cause for a putrid pulmonary abscess exists (or, in the absence of a cause, dental hygiene is poor), (2) thoracic pain is severe, prolonged or recurrent, (3) cough and expectoration are minimal or absent and (4) x-ray examination reveals persistent pulmonary infiltration with or without pleural effusion There are grave dangers inherent in a too long delayed diagnosis. If the possibility of this lesion is borne in mind, a correct diagnosis can be made. The excellent results achieved by adequate operations on the pulmonary abscess and on the complicating empyema that is often present provide an additional incentive to establishing the diagnosis of shut-off putrid pulmonary abscess

Archives of Neurology and Psychiatry, Chicago

54:163-230 (Sept.) 1945

Studies on Cerebral Edema: I. Reaction of Brain to Air Exposure, Pathologic Changes M. Prados, B. Strowger and W. H. Feindel —p. 163.

Tremors of Combat Neuroses: Comparison with Tremors of Paralysis Agitans, Delirium Tremens and the Psychoneuroses of Civilian Life; Electromyographic Studies M. A. B. Brazier.—p. 175.

*Arteriovenous Aneurysm of Great Cerebral Vein and Arteries of Circle of Willis: Formation by Junction of the Great Cerebral Vein and the Straight Sinus and by the Choroidal Arteries and Anomalous Branches of the Posterior Cerebral Arteries B. J. Alpers and F. M. Forster.—p. 181.

Incidence of Advanced Maternal Age in Mothers of 1,000 State Hospital Patients. H. Barry Jr.—p. 186

Menière's Syndrome. Comparison of Results of Medical and Surgical Treatment M. Atkinson —p 192.

Electroencephalographic Localization and Differentiation of Lesions of Frontal Lobes: Pathologic Confirmation. C. L Yeager and S Luse —p 197.

Schizophrenic Reaction Syndrome in Course of Acute Demyelination of Central Nervous System: Clinicopathologic Report of a Case, with Brief Review of Literature. L Roizin, J. D. Moriarty and A. A. Weil —p. 202

Visual Retention Test for Clinical Use A. L Benton —p 212

Arteriovenous Aneurysm of Great Cerebral Vein and of Circle of Willis.—The patient observed by Alpers and Forster was a youth aged 18 who was hospitalized because of headaches from which he had suffered since the age of 6 They were frontal, occurred once or twice a week and became more severe two months before entrance into the hospital In the last month the headaches were accompanied by dizziness, characterized by movement of objects in the environment The patient was somewhat euphoric, highly distractible and rather flippant. His reactions were slow; the intelligence quotient was 64 by the Stanford-Binet test. Because of the history of persistent headache and the evidence of calcification in the roentgenogram, a diagnosis of brain tumor was made. Ventriculographic examination revealed greatly dilated ventricles. The right lateral ventricle was opened At the glomus of the choroid plexus a large, tortuous mass of arteries and veins was found which ran toward the base of the skull and connected with the large vessels, supplying an aneurysm about the size of a hen's egg It was apparently an aneurysm of a branch of the circle of Willis, probably the posterior cerebral artery A part of its wall was calcified; there was a strong pulsation The patient died two days after the craniotomy. Necropsy showed the venous side of the aneurysm to be formed by the great cerebral vein, while the arterial supply was the posterior cerebral and choroidal arteries. As in previously reported cases, internal hydrocephalus was the only significant clinical feature.

Gastroenterology, Baltimore

5:1-84 (July) 1945

Search for Symptomless Gastric Cancer in 500 Apparently Healthy Men of 45 and Over. M. E. Dailey and E R. Miller —p 1.

Hyperalimentation Treatment of Peptic Ulcer with Amino Acids (Protein Hydrolysate) and Dextri Maltose Co Tui, A. M. Wright, J. H Mulholland, T. Galvin, I Barcham and G R. Gerst, with technical assistance of Lilly Schmidt, L. Sutherland and Frieda Wolf —p 5

Esophagus: Review of Literature for 1944. E B Benedict —p 18

Do Aloes and Podophyllum (Carter's Little Liver Pills) Increase Flow of Bile into Duodenum? A. C. Ivy, J. A Roth and M. Gutmann —p 27.

Passage of Air Through Gastric Wall During Gastroscopy, with No Wound Demonstrable Three Hours Later. R Schindler —p. 34

Rate of Progress of Inert Material Through Small Intestine. E J Van Liere, J. C Stickney and D W. Northup —p 37.

Simple Method for Uniform Production of Gastric Ulceration in Rat H. Shay, S. A Komarov, S S Fels, D. Meranze, Margot Gruenstein and H Siplet —p. 43

Illinois Medical Journal, Chicago

88:173-220 (Oct) 1945

Global Disease D J Davis —p. 186.

Alcoholism, a Medical Problem R. S Sabine —p 194

Public Assistance for the Blind in Illinois R H. Hilliard —p 199

Spirochetes in Feces. G H Gowen —p 202

Examination of Strabismus Patients, with Indications for Treatment G Guibor.—p 203.

Journal of Clinical Investigation, Boston

24:611-774 (Sept) 1945. Partial Index

Effect of Continuous Intravenous Administration of Histamine on Basal Metabolism in Human Beings. G. A. Peters, B. T. Horton and W. M. Boothby.—p 611

Liver Function Tests in Chronic Relapsing Vivax Malaria S. W. Lippincott, L D Ellerbrook, W. B Hesselbrock, H. H. Gordon, L. Gottlieb and A. Marble —p 616

Lipids of Serum and Liver in Patients with Hepatic Diseases Evelyn B Man, B. L Kartin, S H Durlacher and J. P. Peters —p 623

Electrophoretic Changes in Serum Protein Patterns of Patients with Scarlet Fever and Rheumatic Fever. V. P Dole, R F. Watson and S Rothbard, with technical assistance of Esther Braun and K. Winfield —p. 648

Chemical, Clinical and Immunologic Studies on Products of Human Plasma Fractionation XXIV Studies on Nutritive Value of Human Plasma Fractions D M. Hegsted, Alice L Hay and F. J. Stare. —p 657.

Id XXV. Preparation of Anti A Isoagglutinin Reagents from Mixed Blood of Groups O and B M Melin —p 662

Treatment of Experimental Hypoparathyroidism in Dogs E. W. McChesney and N. J Giacomino —p 680

Electrocardiograms in Traumatic Shock in Man C H Burnett, E. F. Bland and H. K. Beecher —p. 687.

Quantitative Electroencephalographic Studies of Anoxia in Humans: Comparison with Acute Alcoholic Intoxication and Hypoglycemia. G. L Engel, J. P Webb and E B Ferris —p 691

Studies in Blood Coagulation: Coagulation Properties of Certain Globulin Fractions of Normal Human Plasma in Vitro. F. H L Taylor, C. S Davidson, H J Tagnon, M A Adams, A. H MacDonald and G R Minot —p 698

*Coagulation Defect in Hemophilia Effect in Hemophilia of Parenteral Administration of Fraction of Plasma Globulins Rich in Fibrinogen G R Minot, C S Davidson, J H Lewis, H J Tagnon and F H L Taylor —p 704

Increased Plasma Volume in Cardiac Insufficiency Its Correlation with Rightsided Failure G A Perera —p 708

Solar Heat Load Its Relationship to Total Heat Load and Its Relative Importance in Design of Clothing H F. Blum —p 712

Serum Iodine of Euthyroid Subjects Treated with Desiccated Thyroid D S Riggs, Evelyn B Man and A W. Winkler —p 722

Serum Iodine in Hypothyroidism Before and During Thyroid Therapy. A W Winkler, D. S Riggs and Evelyn B Man —p 732

Type Specific Meningococcic Agglutinins II Relationship of Titers to Course of Disease Carolyn R Falk and E Appelbaum —p 742

Effect of Salicylates on Electrolyte Structure of Blood Plasma II Action of Therapeutic Doses of Sodium Salicylate and of Acetylsalicylic Acid in Man G M Guest, S Rapoport and C Roscoe —p 770

Effect in Hemophilia of Globulins Rich in Fibrinogen.—Minot and his associates demonstrated that normal human plasma essentially free from formed elements, fibrinogen and prothrombin can cause a great reduction in the coagulation time of the blood in hemophilia when administered intravenously or intramuscularly. Such activity was associated with the plasma euglobulin of normal plasma and was deficient in hemophilic blood. Administration, intravenously or intramuscularly, of small amounts of the globulin fraction (fraction I) of pooled normal human plasma reduced the blood coagulation time of hemophilic blood toward or to normal values in 15 out of 16 instances in which it was employed. One of these patients responded to as little as 11.5 mg. of the globulin. In 1 patient the effect of the intramuscular administration of 125 mg. of the protein was minimal. The dosage for therapeutic use has not been established, but 200 to 600 mg. of the globulin has an effect equal to that obtained by 80 cc. of fresh plasma or 100 cc. of whole blood.

Journal of Urology, Baltimore

54:221-355 (Sept.) 1945. **Partial Index**

Renal Adenoma: Case Report. A. Strauss.—p. 221.
*Prognosis of Renal Tuberculosis, Treated by Nephrectomy, and Outlook of Patient Who Is Considered Unsuitable for Operative Treatment. R. M. Nesbit, W. A. Keitzer and J. M. Lynn.—p. 227.
Effect of Renal Pelvic Lavage with Cetylpyridinium Chloride on Urinary Tract Infection and Urolithiasis. W. J. Ezickson.—p. 235.
Secondary Ureterosigmoidostomy. S. F. Wilhelm and S. Freed.—p. 241.
*Cystoscopic Treatment of Stones in Ureter, with Special Reference to Large Calculi, Based on Study of 1,550 Cases. R. L. Dourmashkin. —p. 245.
Treatment of Bladder Dysfunction After Neurologic Trauma. L. G. Lewis.—p. 284.
Actinomycosis of Testicle: Case Report. D. H. Schneider.—p. 296.
Urinary Schistosomiasis: Report of 2 Cases in Maine. C. N. Peters, R. L. Huntress and J. E. Porter.—p. 301.
Multiple Primary Tumors. W. G. Hayward.—p. 307.
Plan for Management of Anuria. J. K. Lattimer.—p. 312.
*Chyluria: Clinical, Laboratory and Statistical Study of 45 Personal Cases Observed in Hawaii. S. Yamauchi.—p. 318.
Clinical Observations on Gonorrhea in Male in Sicily: Report of 137 Consecutive Cases Treated with Penicillin. R. C. Crowell, S. Propp and B. F. Hoopes.—p. 348.

Prognosis of Renal Tuberculosis.—Nesbit and his associates present data on 260 cases of genitourinary tuberculosis observed for five years or longer. Males predominated over females in a ratio of 2:1. The urine in about one third of the patients was secondarily infected by organisms other than the tubercle bacillus. About half of the nephrectomized patients are living (an average of eleven years after operation) while 81.3 per cent of patients not operated on died (in an average of three years). They were unable to demonstrate that genital complications in the male increased the mortality of renal tuberculosis. The higher death rate among males is probably due to the higher mortality of tuberculosis generally in this group. The following three facts were found to be statistically significant: 1. In nephrectomized patients a lower rate of survival will be present in the group having acid fast bacilli demonstrated by guinea pig inoculation in the urine from the unoperated kidney than in those with normal urine on the unoperated side. 2. The survival of women is greater than that of men in urinary tuberculosis. 3. The mortality rate of genitourinary tuberculosis is adversely influenced by the presence of bone and joint or pulmonary lesions.

Cystoscopic Treatment of Stones in Ureter.—Dourmashkin has employed metallic dilators (tunneled bougies) for treatment of stones in the lower end of the ureter, and rubber bag dilators for calculi in the upper two thirds of the ureter. In a series of 1,550 cases of stones situated at all levels of the ureter and renal pelvis, cystoscopic manipulation of 1,253 resulted in 1,171 cases (93.5 per cent) in the expulsion of the stone without an instance of ruptured ureter or mortality resulting from instrumentation. The cases were divided into two groups: 689 with small stones less than 5 mm. in width and 564 with large stones, 5 mm. and more in width. In the small stone group the stones were passed in 99.7 per cent of the cases and in the large stone group in 85.9 per cent. Ample room for the downward passage of the stone was achieved by dilating the lower end of the ureter with metallic bougies and by using rubber bags at the higher levels. Passage of an ordinary catheter was sufficient to induce the expulsion of a small stone in the majority of cases. There are a number of mechanical factors which maintain renal drainage in ureteral stone cases. For this reason renal stones can be present for considerable lengths of time without appreciable renal injury. The majority of patients were treated in ambulatory fashion. Indwelling multiple catheters do not provide adequate dilatation in large stone cases and are apt to produce renal infection. In Dourmashkin's opinion forcible extraction of stones is contraindicated, as the same results may be obtained by more conservative methods without the danger of injury to the ureter.

Chyluria.—Yamauchi believes that physicians in the United States will encounter cases of chyluria among men and women returning from Filaria infested regions. The 45 patients presented by the author were all residents of Hawaii (where filariasis is not endemic) who had been exposed previously to filariasis. Clinical, laboratory and pyelographic studies based on the analysis of the records of these 45 cases of chyluria are compared and correlated with those recorded in the literature. The long period elapsing between exposure to Filaria and the onset of chyluria, the absence of eosinophilia and several other factors indicate that filariasis probably predisposes to this condition but does not actually initiate it. Urinary stasis has been considered to be the exciting cause of chyluria. Fornix rupture caused by urinary stasis results in a lymphaticourinary communication, and chyle appears in the voided urine. Minimal pathologic changes sufficient to form varices are probably present in the lymphatics without definite obstruction to the large retroperitoneal lymphatic vessels and thoracic duct. The presence of fat granules in a colloidal state, the presence of albumin, erythrocytes and lymphocytes, the pyelographic injection of the renal and perirenal lymphatics frequently associated with fornix rupture and pyelovenous reflux and the control of the condition by repeated intrapelvic lavages with sclerosing solutions indicate a lymphaticourinary fistula at the fornix of the calices. The control of chyluria can be accomplished by repeated intrapelvic lavages of silver nitrate solutions through inlying catheters. Urinary stasis must be removed. Fat must be restricted in the diet after such lavages.

Kansas Medical Society Journal, Topeka

46:325-360 (Oct.) 1945

Management of Emboli and Thrombophlebitis. L. S. Nelson.—p. 326.
Intestinal Obstruction in the Newly Born Due to Error in Rotation of Midgut Loop During Fetal Development: Presentation of 2 Cases. D. N. Medearis.—p. 328.

46:361-396 (Nov.) 1945

Traumatic Chylothorax. H. J. Davis.—p. 361.

Medical Annals of District of Columbia, Washington

14:443-482 (Oct.) 1945

Host Variation in Manifestation of Disease, with Particular Reference to Homologous Serum Jaundice in the Army of the United States. L. W. Parr.—p. 443.
Treatment of Infertility in Males. N. Belt.—p. 450.
Electroencephalography in Clinical Practice. A. Mosovich.—p. 452.
New Technic for Abdominal Paracentesis. B. Manchester.—p. 455.

14:483-530 (Nov.) 1945

Role of Small Vessels and Nerves of Heart in Heart Failure, Coronary Artery Thrombosis and Cardiac Pain. J. T. Roberts.—p. 483.
Analysis of Use of Pentothal in 7,400 Anesthetics. J. P. Hand Jr. —p. 496.
Acute Anterior Poliomyelitis: Diagnosis, Differential Diagnosis and Treatment of Bulbar Paralysis and Respiratory Failure. L. K. Sweet. —p. 501.

Medicine, Baltimore

24:219-338 (Sept.) 1945

Tick Paralysis: Critical Review. J. B. Stanbury and J. H. Huyck. —p. 219.
Cutaneous Arterial Spider: Survey. W. B. Bean.—p. 243.
Chemical Separation and Clinical Appraisal of Components of Blood. E. J. Cohn.—p. 333.

Missouri State Medical Assn. Journal, St. Louis

42:621-676 (Oct.) 1945

Thiouracil: Its Use in Hyperthyroidism. D. L. Sexton and M. Levy. —p. 621.
The Patient Diagnoses the Doctor. J. R. Van Pelt.—p. 639.

42:677-748 (Nov.) 1945

Intestinal Obstruction: Two Cases of Unusual Etiology. V. T. Williams and H. B. Walker.—p. 693.
Continuous Drip Pentothal Sodium with Supplementary Anesthesia. Sister M. Cyrilla, O.S.B.—p. 694.

Physiological Reviews, Baltimore

25:573-716 (Oct.) 1945

Control of Secretion of Antidiuretic Hormone from Pars Nervosa of Pituitary Gland. Mary Pickford.—p. 573.
Present Views on Mode of Action of Acetylcholine in Central Nervous System. W. Feldberg.—p. 596.
Genetics and Metabolism in Neurospora. G. W. Beadle.—p. 643.
Relative Nutritive Values of Animal and Vegetable Fats. G. R. Cowgill.—p. 664.
Interference with Biologic Processes Through Use of Analogues of Essential Metabolites. A. D. Welch.—p. 687.

Surgery, Gynecology and Obstetrics, Chicago

81:465-592 (Nov.) 1945

*Osteoid Osteoma, with Case Reports. J. F. Hamilton.—p. 465.
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One Stage "Open" Resection of Lesions of Left Colon Without Complementary Colostomy. K. A. Meyer, A. Sheridan and D. D. Kozoll.—p. 507.
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Struma Lymphomatosa, Struma Fibrosa and Thyroiditis. J. A. Schilling.—p. 533.
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Biologic Investigations of New Absorbable Sponge. J. T. Correll, Hazel R. Prentice and E. C. Wise.—p. 585.

Osteoid Osteoma.—Hamilton presents 5 cases of osteoid osteoma which demonstrate that the disease may be readily and correctly diagnosed. It is frequently confused with sclerosing nonsuppurative osteomyelitis of Garré, Brodie's bone abscess and osteogenic sarcoma. The diagnosis can be made, provided the pathologic process has developed to the point where there is roentgenographic evidence to support the clinical findings and the physician is aware of the possibility of an osteoid osteoma and knows the symptomatology, physical findings and x-ray evidence produced by the pathologic process. Localized pain of a dull, aching character, most annoying at night, with tenderness over the site of the lesion usually confined to an area from 1 to 2 cm. in diameter, is most characteristic. The majority of the patients are in the second or third decade of life. A typical roentgenogram of an osteoid osteoma reveals an oval to round area from a few millimeters to 1 or 2 centimeters in diameter, the center of which presents small areas of rarefaction and condensation. Surrounding this is a narrow zone of condensation, and just outside of this is a zone of rarefaction. The surrounding parent bone is, as a rule, sclerosed for a variable depth. Occasionally the first picture may be negative. This type of case should be restudied by x-rays at a later date, thus giving time for the lesion to develop. The prognosis is uniformly good provided all of the lesion is excised. On the contrary, if it is not removed completely, pain will continue or recur.

Bivalent and Pentavalent Gas Gangrene Antitoxins.—Hall believes that gas gangrene serum is not needed for wounds which receive prompt adequate surgery. The principal value of gas gangrene serum is prophylactic to prevent or delay anaerobic infection until adequate surgery can be secured, but it cannot take the place of adequate surgery. It has therapeutic value when used in adequate dosage as an adjunct to surgery in the treatment of malignant edema and gaseous gangrene due to anaerobic bacilli. Hall studied seven brands of gas gangrene antitoxin. Six of these were bivalent and were labeled to contain 10,000 units each of Bacillus perfringens and Bacillus septicus antitoxins. One was pentavalent and labeled to contain in addition 3,000 units of Bacillus histolyticus antitoxin and 1,500 units each of Bacillus novyi and Bacillus sordelli antitoxins. All of these antitoxins were first tested against a weak toxin of B. perfringens, which generally killed guinea pigs in a dose of 1 cc. but still produced lesions in a dose of 0.05 cc. Five of the seven brands of serum gave complete prophylactic protection against 1 cc. of this toxin in doses of 0.01 cc. or larger; all 5 failed in a dose of 0.001 cc. One gave complete protection in a dose of 0.1 cc. but failed at 0.01 cc., while another gave complete protection at 0.1 cc. and failed irregularly at 0.01 cc. The pentavalent serum was shown to have not only prophylactic but therapeutic action against infections in guinea pigs with a virulent culture of B. perfringens. The immunity conferred by 1 cc. of five antitoxins injected along with 1 cc. of B. perfringens was shown to persist for at least a week when challenged with at least 10 lethal doses of B. septicus culture. The pentavalent serum was shown to have prophylactic values in a dose of 0.1 cc. and therapeutic values in a dose of 1 cc. at twenty-seven hours against at least 100 lethal doses of B. novyi. It had prophylactic values in a dose of 0.1 cc. against at least 10 lethal doses of Bacillus histolyticus. The author concludes that there is no reason to doubt the prophylactic value of seven American gas gangrene antitoxins against the anaerobic infections for which they were intended. One of these serums has been shown to have good therapeutic values against B. perfringens and B. novyi but only slight therapeutic value against B. septicus under the conditions of a possibly too severe test.

Late Symptoms of Immersion Foot.—A group of 65 patients were studied by Fausel and Hemphill fourteen months after the occurrence of immersion foot. Of these, 49 had complaints and 42 had abnormal physical findings associated with chronic peripheral vascular disease secondary to immersion foot. Secondary symptoms following immersion foot are common and more persistent than usually thought. The main complaints are rest pain, numbness of the legs or feet, subjective coldness of the legs or feet and increased perspiration of the extremities. Abnormal physical aspects, particularly plantar ischemia, development of superficial varicosities and decreased peripheral arterial pulsation of the dorsalis pedis artery, usually unilateral and corresponding to the primarily affected extremity, exist in a surprisingly high proportion of patients who have complaints. The authors think that these complaints are on the basis of fibrosis of the extremity secondary to the initial inflammatory reaction after immersion rather than to secondary angiospasm. The persistence of peripheral vascular disease secondary to immersion foot should be brought to the attention of surgeons dealing with immersion foot in view of the fact that these cases may be a source of future persistent disability.

United States Naval Med. Bulletin, Washington, D. C.

45:819-1028 (Nov.) 1945

War Wounds of Lips and Cheeks. G. V. Webster.—p. 819.
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Posttraumatic Urinary Suppression—Shock as Causative Entity, with Review of Rh Factor and Report of Cases. H. L. Pugh.—p. 859.
Health of Liberated Naval Personnel: Report from Luzon. O. C. Hendrix, J. D. Houghton, H. O. Schneider and J. E. Edwards.—p. 874.
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Rapid Method for Primary Isolation and Identification of Neisseria. A. M. Weckstein.—p. 889.
Neuropsychiatric Questionnaire for Group Examining. H. M. Hildreth and J. M. Hill.—p. 895.
Nutritive Value of Naval Food. C. M. McCay, F. H. Davis, R. A. Gortner Jr., Gladys E. Haugen and June H. Sullivan.—p. 903.
Reduction of Complete Transverse Fracture of Edentulous Maxilla. H. N. Stevenson and F. A. Tuoti.—p. 910.
Treatment of Bacillary Dysentery Carriers with Sulfonamides. R. W. Getty and others.—p. 914.
Penicillin in Otitis Media: Treatment of Disease and Its Complications. S. von Christierson.—p. 919.
Penicillin in Treatment of Streptococcal Empyema. C. J. Metcalf.—p. 926.
Penicillin in Primary Atypical Pneumonia: Report of 28 Cases. S. T. Allison.—p. 930.
Sudden Decrease in Central Vision: Its Emergency Nature and Treatment. R. W. ter Kuile.—p. 933.
Emergency Blood Transfusions on Hospital Ships in War Zones. J. C. Norris.—p. 938.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

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Changes in Nervous System in Acute Porphyria. D. Denny-Brown and D. Sciarra.—p. 1.
Electroencephalography in Prognosis of War Neurosis. Mollie E. Heppenstall, D. Hill and E. Slater.—p. 17.
Arterial Relations of Internal Auditory Meatus. S. Sunderland.—p. 23.
Vascular Diseases of Nervous System. C. D. Aring.—p. 28.
Traumatic Injuries of Peripheral Nerves: I. Simple Compression Injuries of Radial Nerve. S. Sunderland.—p. 56.

Journal of Pathology and Bacteriology, Edinburgh

57:285-396 (July) 1945

Influence of Substrate on Variation of Brucella Bronchiseptica. L. Dickinson.—p. 285.
Study of Protective Factors in Heterospecific Blood Group Pregnancy and Their Role in Prevention of Hemolytic Disease of the Newborn. G. H. Tovey.—p. 295.
Non-Mannitol Fermenting Dysentery Bacilli. J. D. MacLennan.—p. 307.
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Relative Effects of Dietary Constituents and Other Factors on Calculus Formation and Gingival Disease in the Ferret. J. D. King and R. E. Glover.—p. 353.
Congenital Malformations of Esophagus. Katherine J. Guthrie.—p. 363.
Formation of Nucleus of Stone in the Urinary Passages. Greta Hammarsten.—p. 375.
*Simple Method of Testing Sensitivity of Wound Bacteria to Penicillin and Sulfathiazole by Use of Impregnated Blotting Paper Disks. D. C. Morley.—p. 379.

Simple Test for Sensitivity of Wound Bacteria.—Blotting paper disks impregnated with penicillin solutions have been used by various workers to detect bacterial sensitivity to penicillin. Usually the disks are laid wet on the surface of an inoculated agar plate or are impregnated while lying on the agar by dropping penicillin solution on them. Blotting paper disks impregnated with penicillin before drying appeal to Morley as more convenient to use because they dispense with the need of maintaining suitable dilutions of penicillin, which must be frequently renewed because of their instability. As the dried disks can be stored over a long period and are always ready for use, they are likely to be most valuable in small laboratories in which a test of sensitivity to penicillin is a comparatively rare event. A similar method has been tried to detect sensitivity to sulfonamides. Although the implications of a negative result have not been determined, this method reveals a certain number of strains which are sensitive to sulfathiazole. It is quick and convenient.

Lancet, London

2:453-484 (Oct. 13) 1945

On Nothing in Particular: Extracts from Inaugural Address to Students of London School of Medicine for Women. L. Moran.—p. 453.
Military Psychiatric Casualties: Experience with 12,000 Cases. H. Palmer.—p. 454.
*Hepatorenal Syndrome Treated with Choline Chloride. J. A. Barclay and W. T. Cooke.—p. 458.
Sigmoidoscopy in Amebic Dysentery. C. F. J. Cropper.—p. 460.
*Penicillin in Skin Conditions in the Army. F. F. Hellier and G. A. Hodgson.—p. 462.
Through and Through Bullet Wounds of Mediastinum, with Recovery. T. St.M. Norris.—p. 464.

Hepatorenal Syndrome Treated with Choline Chloride.—A man aged 27, who in childhood had had a mild jaundice, was admitted to a field dressing station in a state of severe anxiety and exhaustion. He was given barbital for five days but was still depressed. During the next three days he was given phenobarbital and in the next two days more barbital and sodium amytal. He became unconscious and anuric. After four doses of picrotoxin at two hour intervals he returned to consciousness. He passed three stools which contained blood and mucus and vomited six times but passed no urine. Dysentery was considered possible because of severe abdominal pain. He was given sulfaguanidine by mouth and dextrose in isotonic solution of sodium chloride intravenously. No urine was passed, vomiting continued and the abdomen became jaundiced. There was continued hiccup and vomiting, and jaundice became deeper. Choline was given and later methionine and choline, which resulted in gradual improvement and recovery. Barclay and Cooke state that the cause of failure of the liver and kidney function of this patient is obscure. The previous attack of jaundice probably rendered him more susceptible to hepatitis. Jaundice and hepatic degeneration have been described in barbiturate poisoning and some of these patients have had renal damage. Although liver damage of the degree seen in this patient is rare in barbiturate poisoning, this seems to be the most likely explanation.

Penicillin in Skin Conditions.—In the early days of penicillin treatment the drug was restricted to infectious conditions of the skin such as impetigo, ecthyma, folliculitis and sycosis. Later, when more penicillin was available, it was used to treat the infective element in septic eczema, seborrheic dermatitis and sulfonamide dermatitis and was used parenterally for boils and carbuncles. Penicillin spray has been used mostly. The patients were usually sprayed three times a day with ordinary throat spray. A solution of 200 to 500 units per cubic centimeter was used. With a strength of less than 200 units per cubic centimeter the failure rate increased, but no advantage seemed to be gained by increasing the strength above 500 units per cubic centimeter. The use of too strong a solution may even lead to sensitization or at least irritation. Penicillin emulsion made up with 30 per cent Lanette wax in water and containing 200 to 500 units per gram was effective in the same types of conditions as the spray but was particularly useful in infected weeping areas which need a dressing. Hellier and Hodgson have used penicillin emulsion successfully in outpatient clinics, and it will probably be the method of choice in civil practice. Parenteral administration of penicillin has been used in the treatment of carbuncles, severe or recurrent boils and streptococcic infections around the ear.

Khirurgiya, Moscow

2:1-96, 1945. Partial Index

*Anaphylactic Shock in Intravenous Infusions of Antigangrenous Serum. Borisenko-Mitlash and V. I. Popov.—p. 7.
Treatment of Wounds with Chloracid. N. V. Antelava.—p. 16.
Chlorethylideno Methylen Narcosis. D. M. Rossiisky.—p. 19.
Secondary Sutures and Epidermal Plastics in Units of Front Region. M. G. Taborissky.—p. 23.

Anaphylactic Shock Following Intravenous Antigangrene Serum.—Borisenko-Mitlash and Popov state that infusions of large amounts of antigangrene serum are *not* infrequently complicated by anaphylactic reactions despite all precautionary measures. They have observed in a number of cases typical anaphylactic shock terminating in death. They have seen instances of early shock following the introduction of the first few drops of the serum, as well as instances in which shock occurred one to four hours after the infusion. These late fatalities due to anaphylactic shock were erroneously considered by many as deaths due to toxemia of gas gangrene. Besredka's law is not infallible as far as prophylaxis of serum infusion is concerned. His method of desensitization, which consists in injection of a small amount of serum intramuscularly one and one-half to two hours previous to the infusion, is quite reliable in intramuscular, intraperitoneal and subdural injections of serum. It is less reliable in intravenous infusion of large doses of heterogenous serum. Substitution of the intramuscular method of administration of serum for the intravenous lowered the mortality by from 7 to 10 per cent. Prophylaxis of anaphylactic shock in intravenous infusions of large doses of antigangrene serum can be more successfully accomplished by the simultaneous employment of two methods, the desensitization according to Besredka and narcosis with 0.25 per cent solution of evipal in 400 cc. of isotonic solution of sodium chloride with 1 cc. of ephedrine. The infusion must be performed slowly. The nature of the reactions following intravenous infusions of antigangrene serum requires further elucidation.

Book Notices

What People Are: A Study of Normal Young Men. By Clark W. Heath, in collaboration with Lucien Brouha, Lewise W. Gregory, Carl C. Seltzer, Frederic L. Wells and William L. Woods. The Grant Study, Department of Hygiene, Harvard University. Cloth. Price, $2. Pp. 141, with 8 illustrations. Cambridge, Mass.: Harvard University Press; London: Oxford University Press, 1945.

This book is to be regarded as a brief introduction to the point of view of the Harvard Grant Study and the methods used to study superior normal young men from 17 to 24 years of age at Harvard University in order to discover the physical, mental and social traits and characteristics related to relative success or failure some fifteen to twenty years hence. It is a study of normal behavior rather than of disease or abnormality.

The principle on which the study was founded is that the segment of the population which was successfully carrying on the work of the world had lacked the attention it merited by investigative technic even now available. It points out that the concept of "normal" is too often the idea of absence of abnormality.

The study is distinguished by the scope of the appraisal methods in which experts from various fields have appraised their normal personality traits, adjustment to environment, socioeconomic status, mental ability, morphology, physiology and pathology. A large number of measurements or ratings were made under each of these leads. The data cover 238 carefully selected cases appraised during the first four years of study, 1938 to 1941 inclusive. The appendixes give the range, mean and standard deviation of these measurements; also the frequency and percentage for characteristics which were rated but not measured. No statistical results are included to show the quantitative relationships between the traits, abilities, characteristics and performances measured. The approach in the main has been clinical, with each specialist relatively free to appraise the subjects in the manner best suited for his own field.

The aim is to continue the study indefinitely as an institution rather than operate a project limited in time and scope. The intention is to continue the validation of various tests by long-time follow-up and to develop new procedures as they may be found necessary. The continued objective will be to discover the elements making for integration, drive and economic success in life and to verify the hypothesis that leaders of people usually rise from the energetic, well and fit types with higher quality for health than from the opposite. So far there are no conclusions along this line, and there cannot be until the careers of the men are followed.

The selection of subjects was limited to those men who were among the best conformers to social and scholastic disciplines as approved by the deans of their respective colleges. This limits the study tremendously, as there appears to be no control group of less able students. The preconception is that the leaders will arise from the sample selected. A fundamental limitation is that the basic measurements are almost devoid of measurements now made in physical education: motor skill, strength, posture, balance, flexibility, agility, power and some specific aspects of muscular and cardiovascular endurance which are better than the tests used. Analysis of weight by bone, muscle and fat quotas, using appropriate prediction equations for each, composite dynamometer strength per pound of weight, heartogram, electrocardiogram, vital capacity for surface area, expiratory force and breath holding after standardized exertion are other possible tests. The appraisal of the motor qualities seems inadequate to experts in physical education. If health is related to health habits, athletic participation, recreation and measurable aspects of fitness, there should be more careful appraisal of these traits and qualities because of the fundamental hypothesis set up to be verified or rejected. Amount and type of exercise and a complete athletic record seem important enough to record in some detail.

The investigation of mental characteristics impresses one as having been carried out with considerable regard for precision and reliability. In the field of abilities and achievements the research leaves little for criticism or suggestion except that, if special abilities are to be measured at all, the use of Thurstone's measure of primary mental abilities would have been more defensible than the ad hoc special ability measures employed.

In the field of personality description, however, it is unfortunate that no attempt has been made to measure with respect to the half dozen or more clearly defined personality factors revealed as basic for the factor analytic research of the past fifteen years. Even if these assessments had to be made by behavior ratings, by questionnaires or by dynamic projection tests of the thematic apperception type it would have been better—for any attempt at future alinement of findings with general psychologic knowledge—than to depend on a rather ill assorted set of trait ratings or the broken reed of the Rorschach test.

Diagnostic Procedures and Reagents: Technics for the Laboratory Diagnosis and Control of the Communicable Diseases. Second edition. Fabrikoid. Price, $4. Pp. 549, with illustrations. New York: American Public Health Association, 1945.

This is a complete revision of the first edition with the addition of nine new chapters. There are no numbers given to the chapters, but twenty-eight subjects are discussed by nearly that number of different authors, although some authors have been responsible for more than one chapter. The chairman of the Standard Methods Committee, William D. Stovall, had the task of collecting the manuscripts. He, with Lois Almon, also prepared the chapter on pathogenic fungi. As is to be expected, there is no uniformity in the style of writing or in the arrangement of the subject matter. However, each author has conscientiously reviewed the literature, and the long lists of references are valuable guides to further study of any of the technical procedures briefly described. While the title page indicates that the technics for the laboratory diagnosis and control of communicable diseases make up the subject matter, the different authors, depending on their experience, consider the topics differently. One author may stress technic for the identification of organisms, formulas and new methods as well as old, while another considers interpretation of laboratory findings as applied to clinical diagnosis. Control measures, such as quarantine regulations in diphtheria, meningococcic infections, pertussis and streptococcic infections, are discussed. Procedures for prophylaxis and immunization are not given, probably because they are not of diagnostic significance. However, the inclusion of such information would have been helpful to health officers, clinical pathologists and other physicians who are called on to keep the medical profession and the public informed on timely methods of preventive medicine. While this book can in no sense be considered a textbook of laboratory methods, it is a useful guide to the literature on the laboratory diagnosis of communicable diseases.

Dental Chronology: A Record of the More Important Historic Events in the Evolution of Dentistry. By Hermann Prinz, A.M., D.D.S., M.D. Cloth. Price, $3. Pp. 189, with 97 illustrations. Philadelphia: Lea & Febiger, 1945.

This is a small book containing the dates of what the author regards as important events in the evolution of dentistry. It also lists the names of persons who are thought to have made notable contributions to its development. The contents are divided into three periods: (1) antiquity, to the year 1000, the middle ages, from 1000 to 1728, and modern times, since 1728. For the most part the events selected are listed by dates with little or no comment as to their significance. One is led to wonder why certain events and certain persons are listed and why others are omitted, for there seems to be some glaring omissions even allowing for the fact that in any compilation such as this there could always be differences of opinion as to what should or should not be included. For example, no mention whatever is made of men or events connected with either the first or the second world war, which is astonishing, for in both wars remarkable advances were made which profoundly influenced the evolution of dental practice and dental teaching. The contributions of certain dentists in both wars were of such distinction as to deserve a place in any dental chronology. The author does state that "the book does not make a pretense of serving as a substitute for a competent history." For those interested in the date of occurrence of particular events in dental history this book might prove to be useful for reference.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

VIRAL INFLUENZA

To the Editor:—For several months I have been seeing an upper respiratory infection which is different from any previously seen. It vaguely resembles atypical virus pneumonia but simply does not progress into the lungs. It differs from an ordinary common cold in a number of respects, although it is quite similar. A few observations of characteristics which distinguish this ailment are its great contagiousness, the apparent susceptibility of all small children, the mildness in infancy and greater severity in later childhood, the extreme nervous irritability which attends it, the absence of coryza at first followed by an irritating mucoid nasal discharge later, a tendency to epistaxis, the almost universal hemorrhagic appearance of the tympanic membrane and the frequent bleb formation on the drum with severe pain, the comparatively mild pharyngitis, the intractable late cough, the recurrence or perhaps reinfection due to immunity of short duration, secondary anemia out of proportion to the expected effect of the illness, susceptibility of the air passages to changes of temperature for long periods and, last, the few serious complications and sequelae and the low mortality up to this point. The disease is increasing in severity rapidly. I have observed an increase in the number of cases in which abdominal pain, vomiting and diarrhea occur about the fourth or fifth day after onset. My facilities for bacteriology are limited to the identification of what might be termed the "major organisms." Throat and nose cultures show only a gram-positive diplococcus either in pure culture or with short chain streptococci. I am sure that this is not due to either of these organisms. The gram-negative bacillus associated with influenza has been lacking. I did not see the influenza epidemic of 1917 and 1918, but from the descriptions heard and read I should say that the infection described more closely resembles it than does the infection of the upper respiratory tract which has been loosely called "flu" during my medical life. Somewhere adequate bacteriologic studies have undoubtedly been done. Will you give me an opinion and the probable diagnosis? In favor of the diagnosis of influenza is the fact that 2 patients who followed a fairly typical course developed unquestioned influenzal meningitis, I now in the process of recovery with anti-hemophilus type B serum therapy. I am entirely convinced that good results are not forthcoming from sulfonamides or penicillin.

J. M. Albergotti Jr., M.D., Orangeburg, S. C.

Answer.—The first statement in the query has a familiar ring in the ears of an epidemiologist. When periodic epidemic waves of a contagious disease appear after long intervals, the disease is apt to be regarded as a new one and "different from any previously seen." The experience described in the query was the same in Philadelphia and elsewhere in December and January. Evidence of infection with the B virus of influenza was discovered in many patients locally and elsewhere in the country. Influenza B virus was probably the cause of the epidemic, as the inquirer suspects, because of its contagiousness, prevalence in childhood, mild pharyngitis, irritability, myringitis, cough, few complications and the recurrences as described. Among adults the symptoms were similar. In adults the pharynx was often intensely red and edematous but gave little discomfort; headache, general aching, sweating, paroxysmal coughing and irritability or depression were prominent, as were recurrences after several days or even two weeks.

In addition to the clinical picture described, there were numerous cases of viroid or of viral pneumonia (typical atypical [sic] pneumonia). But whether these were caused by the B virus of influenza or other ones was not determined. As noted in the query, there were also instances of viral dysentery, commonly called nausea, vomiting and diarrhea both with and without evidence of involvement of the upper respiratory tract, like those which occurred in epidemic form in Philadelphia in 1943 and 1944 (Reimann, H. A.; Hodges, J. H., and Price, Alison H.: Epidemic Diarrhea, Nausea and Vomiting of Unknown Cause, The Journal, Jan. 6, 1945, p. 1).

The discussion illustrates the present confusion in diagnosing different but similar clinical entities which cannot be further clarified until methods for the demonstration of the respective etiologic agents are available. Epidemics of influenza with or without pneumonia, of viroid with or without pneumonia, of viral dysentery and of the ill defined group of the common colds are seasonal and may overlap. At present some of them can be diagnosed tentatively only by the predominance of characteristic symptoms, signs and laboratory evidence of the respective diseases. For influenza the Hirst red cell agglutination test, the complement fixation test and the isolation of the virus establishes diagnosis. For viroid the cold agglutination test is of value after the disease is over and perhaps the newly discovered virus of Eaton may eventually be isolated. For common colds and for viral dysentery the diagnosis depends on clinical and epidemiologic evidence alone, as described in the paper referred to. Ordinary bacteriologic cultures of the nose and throat are of no value in diagnosis.

The inquirer is in error when he states that the recognition of meningitis caused by Hemophilus influenzae (Pfeiffer's bacillus) supports a diagnosis of influenza. Pfeiffer's bacillus, the so-called influenza bacillus, has nothing to do with influenza as we now understand it to be caused by influenza viruses A and B and probably X or Y. The habit of loosely calling all minor febrile diseases "flu" should be stopped. Influenza is now an established etiologic entity and must be regarded as such for the sake of accuracy and in view of current use of specific prophylactic vaccine.

It is true that neither the sulfonamide compounds nor penicillin have any specific influence in viral infections of the kind in question.

It may be pointed out incidentally that streptomycin seems to be of value for meningitis caused by H. influenzae.

THE GAY TREATMENT FOR ASTHMA

To the Editor:—I have heard recently of some special treatment for asthma that is given by Dr. Fred S. Gay of Biloxi, Miss. Can you tell me the nature of this treatment?

M.D., Wisconsin.

Answer.—According to Dr. Gay, he accepts patients only by appointment and only a limited number at any time. He requests his patients to stay under his immediate observation for a week, after which they go home and continue treatment as he directs them. Dr. Gay says also that he is always glad to furnish the patients' family doctor with copies of the prescriptions he gives the patients. Dr. Gay states that he "never did advertise in any way and that the only way any one ever heard of him was from some patient he had treated."

Reports indicate that his methods have developed a considerable amount of interest among the medical profession and that some physicians have been visiting him to secure the details of his technic, and for that reason this subject is published in Queries and Minor Notes in The Journal.

In response to an inquiry Dr. Gay has written that he does not use any specific new method of treatment of asthma. He endeavors to correct any abnormality that may exist, paying particular attention to the gallbladder and kidneys.

Patients are carefully examined and given the medication which according to Dr. Gay's judgment is indicated in each individual case. Most patients are given some form of calcium, such as calcium lactate or some form of liquid calcium, such as Calmulsion, in varying quantities and a prescription containing Fowler's solution and potassium iodide in varying quantities figured according to age, weight and general condition of patient. To this is added where and if indicated small quantities of tincture digitalis or phenobarbital put up in a vehicle of plain water, sometimes sweetened and sometimes colored red with an inert coloring substance of no medical value. In addition he oftentimes gives an oil solution of amphetamine solution, 2 drachms to 2 ounces of light petrolatum for nose drops and insists that the intestinal secretions be kept acting well at all times, for which he recommends a tablet containing pure bile salts and cascara, such as Colopo Tablets, made by the G. W. Carnrick Company, or bile salts with cascarin, made by Parke Davis and Company.

Dr. Gay supplies the medicine to his patients in most cases and requests that they report their general condition, weight and other details to him by mail at regular intervals and directs them as to procedure over a period of two years or more and claims that more than 90 per cent of his patients report improvement and in a large percentage complete relief from asthma within a two year period. He uses no ephedrine nor opiates but allows all patients to take any temporary relief medicines at any time if needed, including epinephrine, aminophylline ,and ephedrine.

SIX YEAR OLD BOY SHOULD SLEEP ALONE

To the Editor:—Is it harmful from a physical or mental standpoint for a boy aged 6 years to sleep with his father?

M.D., New York.

Answer.—In general it is more healthful for a child to sleep alone, certainly from the point of view of emotional health. Although serious harm would probably not result from a 6 year old son sleeping with his father, it is poor mental hygiene in that the child is being placed in a situation which may provoke anxiety. The quite normal feelings of love, envy, jealousy and fear that any son may have toward his father may all be aggravated by such an arrangement. It is better for a child to sleep alone if the physical condition of the home will permit.

HEAT CRAMPS OCCURRING ONLY AT NIGHT

To the Editor:—A man aged 27 has had eight seizures in six years, usually coming at night and awakening him with nausea. Vomiting nearly always follows and occasionally diarrhea. Then in about thirty minutes he notes a stiffening of his fingers and slowly they go into extensor tetany. The legs and feet next go into extensor spasm. Then the abdominal muscles tighten and finally the facial muscles draw stiffly. The thorax has never been involved. When the attack is allowed to progress to its fullest extent it is extremely painful. There are never any headache, clonic convulsions, incontinence, cry, loss of consciousness, numbness, paresthesias or resultant paralysis. The first attack was in 1938 during hot weather, and salt was given orally and seemed to control the seizure. Since then the patient has asked for salt and is given intravenous solution, since oral salt makes him ill, and always obtains relief. It is not quite clear whether or not all attacks have been preceded by perspiration. Attempts to relieve attacks by calcium were useless. There has not yet been an opportunity to observe an attack, but plans are being made to obtain samples of blood for testing of the potassium, sodium, calcium and carbon dioxide combining power.

D. I. Thompson, Captain, M. C., A. U. S.

Answer.—The symptoms are consistent with a diagnosis of heat cramps, a malady associated with loss of salt in the sweat, painful cramps in the voluntary muscle of the extremities and relief following replacement of sodium chloride. The age, sex, periodicity and environment likewise conform. Nausea and vomiting are unusual precursors but, if they occur, tend to aggravate the pathologic processes due to increased loss of electrolytes from the body. The pain in the muscles is the incapacitating feature of heat cramps. One should inquire whether the patient had been engaged in strenuous activity on the day prior to the onset of symptoms. Under such circumstances loss of sodium chloride in the sweat may have depleted the body content to a critical level. The muscle spasms are not usually referred to as tetany, and the flexors are more often affected than the extensors. As noted in the query, it would be desirable to determine the concentration of serum electrolytes, particularly serum sodium, calcium and carbonate. Idiopathic nocturnal cramps cannot be excluded from the evidence presented. A review of the literature on heat cramps by J. H. Talbott appeared in *Medicine* (**14**:323 [Sept.] 1935).

INCOMPATIBILITY OF CODEINE AND AMMONIUM CHLORIDE

To the Editor:—This inquiry concerns the use of codeine in sedative cough mixtures. It is generally stated in the pharmacology of codeine that it is incompatible with ammonium chloride and alkalis (the Merck Index, ed. 5, Rahway, N. J., Merck & Co., Inc., 1940, p. 159). Yet in Beckman's book (Beckman, Harry: Treatment in General Practice, ed. 4, Philadelphia, W. B. Saunders Company, 1942, p. 21) codeine and ammonium chloride are combined in a cough mixture. Then too, Goodman and Gilman (Goodman, Louis, and Gilman, Alfred: The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1941, p. 220) suggest that codeine may be profitably combined with the sedative expectorants without excluding ammonium chloride or the citrates.

Israel Pine, M.D., Belle Harbor, L. I., N. Y.

Answer.—Although ammonium chloride is stated to be incompatible with codeine preparations because of the liberation of ammonia, which would precipitate the alkaloid as a base, such mixtures as that cited by Beckman may be prepared by mixing solutions of the drugs, rather than the dry forms, and then adding the solvent. The permanence of such preparations is usually adequate for clinical use.

SULFONAMIDES

To the Editor:—When were the sulfonamides first available for general use by physicians?

Martha O'Malley, M.D., Boston.

Answer.—The sulfonamides apparently were first available for general use by physicians in Germany in 1936 and in Great Britain, France and the United States in 1937. It is understood that sulfanilamide could be purchased in Boston as early as the middle of November 1936. However, it was a proprietary brand and at that time apparently was not widely distributed.

INTRAVENOUS INJECTIONS

To the Editor:—Is there any more danger in using the saphenous vein at the ankle for intravenous fluids than there is in using the vein of the hand and arm?

J. Vernon Pace, M.D., Paducah, Ky.

Answer.—In the absence of local contraindication such as varicosities, old thrombophlebitis, phlebothrombosis and the like, and with the body in a horizontal position, fluids may be introduced into any accessible vein without significant difference in risk.

MALARIA

To the Editor:—What proportion of malaria patients are prone to have recurrences and what is the number of permanent cures? In other words, what can be expected as regards the veterans having recurrences and how long will it be necessary for them to continue treatment in order to effect a cure? What is the best accepted treatment of malaria today and the dosage?

Leslie C. Taylor, M.D., Lakewood, Ohio.

Answer.—An accurate answer to the first question is not possible because the figure is constantly changing. Of the many thousand cases of malaria acquired during the war, relatively few relapses are still occurring. During the war only two types of malaria, falciparum (malignant tertian) and vivax (benign tertian) were of importance. Falciparum malaria is the most severe type and responsible for practically all deaths (which were rare except in prison camps) but has a fortunate biologic characteristic in that after the acute attack it rarely relapses. Vivax malaria, on the other hand, is practically never fatal of itself but will relapse in from 35 to 50 per cent of all instances. With each relapse there is a decreased possibility that another will occur. There is as yet no drug which can be relied on to terminate an infection regardless of amount or duration. The rationale of therapy is to treat each relapse as it occurs and use supportive measures when indicated. Recommended treatment for uncomplicated malaria is atabrine dihydrochloride 0.2 Gm. (3 grains) every six hours for five doses; thereafter 0.1 Gm. (1½ grains) three times daily for five days. It should be taken with fluids, 200 or 300 cc. of water, or before meals in order to reduce gastric irritation.

PERSISTENT HERPES ZOSTER

To the Editor:—A patient has had herpes for three months involving the right lower quadrant of the abdomen. All the known recommended treatments have been tried, including vitamin B, ethyl chloride spray and collodion. I understand that high voltage x-ray therapy has not given satisfactory results. Is there any new treatment for this affliction?

W. J. Klinck, M.D., Lennoxville, Que.

Answer.—An additional treatment for herpes is 5 grains (0.32 Gm.) of quinine hydrochloride by mouth three times daily for four days. If no relief is obtained, administration of one ampule of double strength posterior pituitary injection hypodermically daily for two days in succession might be tried. Section of the right tenth, eleventh and twelfth posterior roots of the thoracic spinal cord and right first posterior root of the lumbar spinal cord may be resorted to if other measures fail. Before undertaking such an operation, spinal anesthesia should be administered in order to determine the upper level of the herpetic pain in the thoracic cord.

VALSALVA EXPERIMENT AND PAROXYSMAL TACHYCARDIA

To the Editor:—Will you please explain to me what the Valsalva experiment is, its importance and its use in auricular tachycardia.

William R. Sulman, M.D., Hazleton, Pa.

Answer.—The Valsalva experiment consists in an attempted forced expiration with the glottis (or mouth and nose) closed in contrast to the Müller experiment, which is an attempt to inspire forcefully with the glottis closed. The Valsalva experiment increases sharply the intrathoracic pressure and tends to prevent blood from entering the thorax and the heart, with resulting temporary decrease in heart size. There is a vagal reflex effect from this that may act to stop paroxysmal auricular tachycardia. Usually, however, such a therapeutic measure fails, although it is of interest to try it in cases of obstinate auricular paroxysmal tachycardia.

TIME OF DAY FOR METABOLISM TEST

To the Editor:—Basal metabolic tests are done during the morning hours on an empty stomach. Will you kindly advise the reasons, if any, that tests cannot be made during the afternoon?

J. W. Lane, M.D., West Chicago, Ill.

Answer.—Basal metabolism determinations are done under so-called basal conditions, namely after a rest period of at least one-half hour and twelve to fourteen hours after the last meal. The digestion of food raises the basal metabolism somewhat, particularly protein food, because of its specific dynamic action.

There is no good reason why under some circumstances basal metabolism tests should not be done in the afternoon if the program of the patient is arranged in such a way that he sleeps later in the morning. For most patients the afternoon would be an unsatisfactory time because work and the emotional stress and strain of ordinary daily events might raise the metabolism even though it was preceded by the usual rest period.

The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 130, No. 7 | Chicago, Illinois | February 16, 1946

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ARTIFICIAL RESPIRATION

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Philadelphia

A recent review article[1] has pointed out the paucity of quantitative data on which valid comparisons may be made of various technics for performing artificial respiration. At present the two most widely discussed methods are the Schafer prone pressure and the Eve tilting[2] or gravity technics; the former is recommended by the American Red Cross, while the latter is used extensively by the British navy. In view of the prolonged and often bitter controversies in the field of artificial respiration, it is interesting to note that the relative effectiveness of these two methods has been measured in only 3 subjects who might possibly be considered to be in need of artificial respiration. Each of these 3 was anesthetized deeply with ether, then rendered apneic by passive hyperventilation and immediately subjected to the Schafer and Eve technics while measurements of tidal air were made.[3] Data on these patients are given in table 1. It indicates that much more data are needed to prove that the widely accepted Schafer method is superior or even adequate.

As far as we know, these two methods have never been compared quantitatively in typical cases of respiratory failure with asphyxia. In the cases in table 1 the blood oxygen tension was undoubtedly high and the carbon dioxide tension low as a result of the period of hyperventilation induced by the investigators. In cases encountered clinically in which artificial respiration is required, asphyxia always exists, i. e., arterial oxygen is very low and carbon dioxide is very high.[4] This report is concerned with 2 such patients with complete respiratory arrest in whom it was possible to compare various resuscitation technics. In patient C. M. respiration ceased following a severe head injury; in B. R. it stopped after intraventricular rupture of a brain abscess. Both patients were unconscious throughout. In both, arterial blood pressure was low (40 to 70 mm. of mercury) and despite plasma, saline or gelatin infusions it remained near shock level until death (in seven hours in C. M., in two and one-half hours in B. R.). Respiration was measured by applying tightly a full face mask equipped with flutter valves; the expired air was conducted through a Bohr meter and measured. In both, *an endotracheal tube was passed through the larynx to* ensure an open airway. Arterial blood gas analyses were performed by means of the technic of Van Slyke and Neill; blood p_H was measured in a closed glass electrode at 38 C.

RESULTS

1. *Comparison of Schafer and Eve Methods.*—The data obtained (table 3) show the complete inadequacy of the Schafer method in these 2 cases. The tidal air produced by the Schafer technic varied from 71.5 to 117 cc. (normal is 400 to 500 cc.) despite the fact that the motions used conformed closely to the approved technic.[5] Two different operators (both experienced) were used, each weighing approximately 180 pounds (81.6 Kg.). It is instructive to note that prone pressure applied to C. M. at a time when he was lying on a thin mattress produced only 75 cc. per cycle as compared with 117 cc. when the mattress was removed leaving only a hard plywood tilt table; too often artificial respiration is given to a mattress rather than to the patient.

On the other hand, the Eve tilting or gravity technic (with the patient tilted through an angle of 45 degrees in each direction) produced an adequate exchange of 286 to 500 cc. per cycle. No comparison of possible beneficial effects on circulation of the two methods was possible in this study.

It is apparent that the Schafer method failed almost completely to ventilate these patients. Widespread popular reliance on this technic rests chiefly on its ability to maintain a good respiratory exchange (360 to 1,000 cc. per cycle[6]) in subjects who have voluntarily suspended their respiration. It has long been known that nonrigid cadavers cannot be ventilated by the Schafer technic, values of *20 to 50 cc. per cycle* having been reported.[6] Proponents of the Schafer method have dismissed these observations on the grounds that loss of muscular tone, increased blood in the lungs and possible respiratory tract obstruction in such subjects make them unfit for test purposes. However, there is good reason to suspect that a patient who is unconscious, apneic, asphyctic and in shock because of profound medullary depression resembles a fresh cadaver more

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Valuable assistance was given in these studies by Drs. Margery Deming, John Drew, John Todd, William Holt and John Churchill.

From the Department of Pharmacology and Harrison Department for Surgical Research, University of Pennsylvania School of Medicine, and Department of Anesthesiology, Hospital of the University of Pennsylvania.

Financial support for this work was received from the National Committee for Mental Hygiene from funds granted by the Committee on Research in Dementia Precox founded by the Supreme Council, 330 Scottish Rite, Northern Masonic Jurisdiction, U. S. A.

[1] Comroe, J. H., Jr., and Dripps, R. D.: Applied Physiology, in Luck, J. M.: Annual Review of Physiology, Stanford University, Calif., Annual Reviews, Inc., 1945, vol. 7, p. 666.

[2] Eve, F. C.: Actuation of the Inert Diaphragm by a Gravity Method, Lancet **2:** 995 (Nov. 5) 1932.

[3] Waters, R. M., and Bennett, J. H.: Artificial Respiration: Comparison of Manual Maneuvers, Anesth. & Analg. **15:** 151 (May-June) 1936. MacIntosh, R. R.: Artificial Respiration, Brit. M. J. **2:** 493 (Oct. 16) 1943. Eve, F. C.: Resuscitation Methods for Rescue Boats, ibid. **1:** 21 (Jan. 6) 1945.

[4] Eastman, N. J.: Fetal Blood Studies, Am. J. Obst. & Gynec. **31:** 563 (April) 1936.

[5] Scott, M. M.: First Aid in Asphyxia, Practitioner **147:** 580 (Sept.) 1941.

[6] Cordier, D. G.: Methods of Artificial Respiration, Brit. M. J. **2:** 381 (Sept. 25) 1943.

closely than he resembles a normal healthy subject. Our evidence indicates that this resemblance certainly exists so far as respiratory exchange is concerned. The Schafer method depends to a large extent on the elastic recoil of the lungs and tonicity in the respiratory muscles; since these are absent in the deeply asphyxiated patient, Schafer's method becomes of least value when most needed. Conversely the Eve tilting method is efficient when tonus and elasticity of these structures are absent.

TABLE 1.—*Comparison of Schafer and Eve Methods by Previous Investigators*

	Tidal Air	
	Schafer	Eve
Waters and Bennett [3]	160 cc.	150 cc.
MacIntosh [3]	340 cc.	580 cc.
Eve [3]	530 cc.	850 cc.

Comment: There are two important considerations in any discussion of artificial respiration. The first is the time element. When artificial respiration is needed, it is essential that the most immediately available method be employed instantly. This usually happens to be the Schafer prone pressure method, for even simple mechanical devices such as a tilt board or bellows are rarely available in the first few minutes, even in large hospitals. The second important consideration is that, as soon as possible, the most efficient available method of artificial respiration should replace the emergency measure. We agree with all who have claimed that insistence on the sole use of mechanical "gadgets" often leads to loss of life because of the minutes in which no therapy at all is instituted. We do not agree, however, that reliance is to be placed on the Schafer method except as a very temporary emergency measure.

TABLE 2.—*Arterial Blood and Alveolar Gas Studies During Tracheal Insufflation of Oxygen*

			Arterial Blood				"Alveolar" Air	
	Time	Oxygen Therapy	Oxygen Saturation, %	pH	CO_2 Content, Vols. %	PCO_2, Mm. Hg	O_2, %	CO_2, %
Patient—C. M. Man aged 53	2:57 p. m.	Tracheal insufflation, 6 liters per minute for 7 minutes	95.8	6.86	64.8	166	....	....
Height, 6 feet Weight, 196 pounds	3:18 p. pm.	Tracheal insufflation, 10 liters per minute for 20 minutes	92	6.80	72.1	207	....	....
	6:30 p. m.	Tracheal insufflation, 6 liters per minute for 3 hours	75	6.67	85.8	314	52.3	29.7
	6:40 p. m.	Hyperventilation with anesthesia bag, 40 respirations per minute for 10 minutes	95	7.00	55.5	106	....	....
	7:00 p. m.	Tracheal insufflation, 6 liters per minute for 15 minutes	75	6.83	70.9	189	47.7	24.4
Patient—B. R. Woman aged 41	9:15 p. m.	Tracheal insufflation, 11 liters per minute for 30 minutes	90	6.86	55.9	142	....	....
Height, 5 feet 5 inches Weight, 135 pounds	9:48 p. m.	Tracheal insufflation, 11 liters per minute for 63 minutes	65	6.88	61.6	152	....	....

On the other hand, we do not wish to imply that the Eve method is the best available or best possible technic for artificial respiration; valuable minutes may be lost in improvising a tilt table, and the operation of such improvised tables usually requires the expenditure of considerably more energy and manpower than is required with other methods.

Furthermore, at the earliest possible moment the patient's care should pass from the hands of the fireman, policeman or passerby to those of a physician highly trained in resuscitation; in most hospitals this is the anesthesiologist. Resuscitation of the near dead is a complex matter involving specialized knowledge concerning many aspects of respiratory, circulatory and central nervous system physiology. It is of the utmost importance that clinicians and physiologists collect quantitative data on many more such apneic, asphyxiated patients in whom actual need exists for artificial ventilation.

2. *Intratracheal Insufflation with Oxygen.*—In 1909 Meltzer and Auer [7] noted that life could be maintained for hours in apneic animals without any external respiratory movements if a stream of oxygen was directed through a catheter toward the bifurcation of the trachea. This finding has been confirmed frequently.[8] However, it has been pointed out on several occasions [9] that the oxygen insufflation technic does not effectively eliminate carbon dioxide from the lungs; to accomplish this, actual expansion on and collapse of the lungs are required. Carbon dioxide has a greater molecular weight than oxygen and does not diffuse more rapidly in air than oxygen, despite the greater ease with which it diffuses through water and through living membranes. Nevertheless the original insufflation technic is not infrequently used (without additional rhythmic compression of the chest) because of its ease and simplicity.

In the course of the studies just described we were able to make observations on arterial and alveolar gas tensions during intratracheal insufflation of oxygen (table 2). In patients C. M. this technic resulted in an initial arterial oxygen saturation of 95.8 per cent and in B. R. of 90 per cent. However, at these times the

TABLE 3.—*Comparison of Schafer and Eve Methods on Two Apneic, Asphyctic Patients*

	Tidal Air		Rate		Minute Volume	
Patient	Schafer	Eve	Schafer	Eve	Schafer	Eve
1. C. M.						
On mattress...	75 cc.		12		900 cc.	
On hard board	117 cc.	500 cc.	12	12	1,400 cc.	6,000 cc.
2. B. R.						
On hard board	71.5 cc.	286 cc.	14	14	1,000 cc.	4,000 cc.
	95.0 cc.	312 cc.	21	16	2,000 cc.	5,000 cc.

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7. Meltzer, S. J., and Auer, J.: Continuous Respiration Without Respiratory Movements, J. Exper. Med. **11**: 622 (July) 1909.

8. Draper, W. B., and Whitehead, R. W.: Diffusion Respiration in the Dog Anesthetized by Pentothal Sodium, Anesthesiology **5**: 262 (May) 1944. Roth, L. W.; Whitehead, R. W., and Draper, W. B.: Studies on Diffusion Respiration: II. Recovery Following Prolonged Respiratory Arrest, Federation Proc. **4**: 61 (March) 1945.

9. Behnke, A. R.: Certain Physiologic Principles Underlying Resuscitation and Oxygen Therapy, Anesthesiology **2**: 245 (May) 1941. Henderson, Yandell: Resuscitation, J. A. M. A. **110**: 304 (Jan. 22) 1938. Draper and Whitehead.[8] Roth, Whitehead and Draper.[8]

arterial carbon dioxide tensions were 166 and 142 mm. of mercury and the arterial p_H values were 6.86 and 6.86 respectively. In C. M. we attempted later to obtain alevolar air samples by compression of the chest and simultaneous aspiration of a sample of tracheal air through the previously flushed catheter. While such collections are obviously inaccurate in an apneic, unconscious patient, the figures obtained should be lower rather than higher than true values. The figures of 29.7 per cent of carbon dioxide and 24.4 per cent of carbon dioxide in such "alveolar air" together with an arterial blood carbon dioxide tension of 314 mm., of mercury (equivalent to 44 per cent of carbon dioxide in the alveolar air) leave no doubt regarding the tremendous accumulation of carbon dioxide that may occur during respiratory arrest, despite intratracheal insufflation with oxygen.[10]

Although these patients had a pink color and were obviously well oxygenated, it is apparent from the arterial blood analyses that the blood bathing the central nervous system was grossly abnormal in other respects. The enormous increase in carbon dioxide tension and acidity of the arterial blood are factors not so readily appreciated by the clinician as a decrease in arterial oxygen saturation. While all physicians are familiar with the stimulation of respiration and circulation that follows inhalation of low concentrations of carbon dioxide (5 to 7 per cent) in healthy men, it is not so universally known that high concentrations of carbon dioxide act as a narcotic.[11] The latter depress the medullary centers and the cerebral cortex and lead to decrease in respiration, vasodilatation and fall in blood pressure. The concentrations of carbon dioxide present in the blood of C. M. and B. R. must certainly have exerted a narcotic depressant effect. The extremely low p_H values (6.67 to 6.88) in these patients undoubtedly acted similarly. While a moderate degree of acidosis may increase respiration and circulation reflexly through the chemoreceptors, severe acidosis depresses all vital functions including circulation and respiration. The arterial p_H values in these patients are among the lowest ever recorded (similar figures having been reported only in terminal nephritis [12]). In patient C. M. the low p_H was due in large part to carbon dioxide retention, since hyperventilation with an anesthesia bag [13] for ten minutes at a rate of 40 cycles per minute reduced the arterial carbon dioxide tension to 106 mm. of mercury and increased the p_H to 7.00. Accumulation of lactic acid due to severe tissue anoxia and fixed acid retention due to intense renal vasoconstriction caused by the low blood pressure were probably responsible for some of the acidosis.

These studies emphasize that artificial respiration, to be maximally effective, must not only raise blood oxygen to normal levels but must reduce blood carbon dioxide to normal levels. The original oxygen insufflation technic provides adequate oxygen but permits accumulation of narcotic concentrations of carbon dioxide; consequently it should not be employed for more than a few minutes without additional rhythmic manual compression of the chest. Tingley's plea for a much faster rate in artificial respiration for asphyxiated patients [14] is probably justified; we do not believe that these unconscious patients require excessive amounts of oxygen, but it certainly is essential to reduce carbon dioxide to normal levels. There is no doubt that low levels of blood carbon dioxide may be harmful because of the resultant cerebral vasoconstriction;[15] however, it is unlikely that any existing method of manual artificial respiration could produce enough hyperventilation in fifteen minutes to do harm. Excessive hyperventilation may of course result from the improper use of mechanical resuscitators.

It is important to note that in both patients arterial oxygen saturation fell (from 95.8 per cent to 75 per cent and from 90 per cent to 65 per cent) with the prolonged use of the intratracheal insufflation technic. While this may have been due in part to the formation of pulmonary edema fluid, we feel that the development of atelectasis is a much more likely explanation. The coexistence of alveoli filled with oxygen (which is readily absorbed into the blood), apnea and inability to cough up secretions presents the ideal situation for plugging of bronchioles and subsequent atelectasis. Evidence in favor of this concept was provided by Comroe, Dripps, Dumke and Deming,[16] who found considerable decreases in vital capacity even in normal men who had been breathing high oxygen concentrations for prolonged periods. These studies again emphasize the complexities involved in treating a near-dead patient and the need for further and more careful evaluation of available technics.

SUMMARY

Quantitative data obtained on apneic, asphyctic patients cast grave doubt on the efficacy of the Schafer prone pressure method for producing artificial respiration.

Observations have also been made on the Eve tilting method and the intratracheal oxygen insufflation technic.

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[10] It should be pointed out that there was *no greater* hindrance to outward diffusion of carbon dioxide than to inward diffusion of oxygen. The arterial oxygen saturation of 90 to 95.8 per cent was attained only by reason of the high oxygen tension supplied in the trachea: if air had been used instead of oxygen, very severe anoxia would have accompanied the high carbon dioxide levels.

[11] Seevers, M. H.: The Narcotic Properties of Carbon Dioxide, New York State J. Med. **44**: 597 (March 15) 1944.

[12] Cullen, G. E., and Jonas, L.: The Effect of Insulin Treatment on the Hydrogen Ion Concentration and Alkali Reserve of the Blood in Diabetic Acidosis, J. Biol. Chem. **57**: 541 (Sept.) 1923.

[13] Waters, R. M.: Simple Methods for Performing Artificial Respiration, J. A. M. A. **123**: 559 (Oct. 30) 1943.

[14] Tingley, P. R.: The Need for a Greatly Increased Rate in Asphyxia, Brit. M. J. **2**: 366 (Sept. 16) 1944.

[15] Kety, S. S., and Schmidt, C. F.: The Effects of Active and Passive Hyperventilation on Cerebral Blood Flow, Cerebral Oxygen Consumption, Cardiac Output and Blood Pressure of Normal Young Men, J. Clin. Investigation, to be published.

[16] Comroe, J. H.; Dripps, R. D.; Dumke, P. R., and Deming, Margo: Oxygen Toxicity, J. A. M. A. **128**: 710 (July 7) 1945.

Skull Fracture.—Depending on the velocity and size of the striking object, a local deformation may take place and the bone in the area of impact may fail with consequent localized circumscribed fracture and depression. In such a case there frequently occurs a separation of the inner and outer tables. The bone fails at the convexity of the border of the circumscribed area of bone which is deformed by the impact. This causes fracture by tension of the external table. The central portion of the area of deformed bone may fail internally, causing a fracture of the inner table. A separation of inner and outer tables may take place as one tends to slide over the other. A localized impact may dissipate itself in fracturing and depression without much transmission of energy to the skull contents. On the other hand, if an area of circumscribed depression is thrust into the cranial cavity by a severe impact, there may be a plunger effect with intracranial pressure increased and consequent pathologic and physiologic manifestations from distant lesions.—Gurdjian, E. S., and Webster, J. E.: *Experimental and Clinical Studies on the Mechanism of Head Injury*, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

THE INJECTION TREATMENT OF ESOPHAGEAL VARICES

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and
MILFORD O. ROUSE, M.D.
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It is well known that recurring massive hemorrhage ultimately resulting in death often occurs in the patient who has untreated esophageal varices. As seen by x-ray examination and esophagoscopy, the bulbous venous projections into the esophageal lumen are daily subject to trauma from the swallowed bolus of food. Ulceration and rupture result in massive blood loss. Esophageal varices appear to serve no useful purpose that cannot be served by other and nonvulnerable anastomoses between the portal and systemic venous circulations. Our experience is that obliteration of these veins results in no appreciable unfavorable effects but rather that clinical improvement occurs soon after prevention of blood loss from the ruptured varix.

Experimental animals and other species than man have not provided the clinical syndrome in which the esophageal varix appears. Injection treatment had for years been considered, but it remained for two physicians, Paul Frenckner and Clarence Crafoord[1] of Stockholm, Sweden, in 1939 to report the first case in which esophageal varices were treated by injections of a sclerosing solution. There had been no recurrence of bleeding at the time of the report three years after the injection. In 1940 Moersch[2] reported the first case in this country in which the treatment was employed. He has later[3] reported other cases in which he has injected esophageal varices with a 2.5 or a 5 per cent solution of sodium morrhuate.

It has been our privilege to treat 12 patients (10 white male, 2 white female), the youngest 3 years of age, the oldest 66 years of age, injections being made into one or more veins. The patients have received at the most three or four injections at intervals varying from one week to one year. One patient's injections were done before and also after splenectomy. Four patients' injections were done after splenectomy, and 7 patients of older age were so treated in whom splenectomy has not as yet been done.

REPORT OF CASES

Case 1.—A white man aged 53, admitted to the Medical Arts Hospital, service of Dr. Merritt B. Whitten, had been unable to leave his bed for three months because of frequently recurring massive hematemeses. Frequent states of shock from blood loss had been treated by infusions of plasma and whole blood. With the diagnosis of cirrhosis of the liver, and huge abdominal ascites, he had had frequent abdominal paracenteses the previous eighteen months.

Esophagoscopy and injection of his esophageal varices were done by us at weekly intervals for four times in February 1944. He was up in a wheel chair six weeks later. He was soon ambulatory and discharged from the hospital. Six months after his injections his red cell count was 4,200,000 and he had continued ambulatory. In September 1944, seven months after his injection treatments, he had several recurrences of massive hematemesis from which he failed to survive. It was quite stimulating, however, that this patient with ascites and confined to his bed for three months because of esophageal varices which ruptured each time his red count came up to about 2,000,000, had quickly become able to be out of bed and his red cell count had rapidly returned to normal within a few weeks after the injection treatment of his esophageal varices.

Case 2.—A white boy aged 3 years, admitted to Bradford Memorial Hospital, service of Dr. John Dunlap, was diagnosed as having "splenomegalia, with massive hematemesis, probably Banti's syndrome." Recommended splenectomy and ligation of the coronary vein of the stomach were successfully done Oct. 30, 1943. Massive hematemesis recurred Sept. 15, 1943 and Feb. 11-14, 1944. Having had splenectomy, this small boy was considered an ideal subject for the best results by injection treatment of his esophageal varices. Esophagoscopy by one of us on February 17 visualized a large, bulbous, bluish red scarred vein projecting into the lumen of the esophagus just above the cardia, which was injected with 1 cc. of 5 per cent sodium morrhuate. There were only a few drops of blood loss from the needle puncture. Esophagoscopy was repeated February 26 and two other small veins near the cardia were injected. Fifteen months later, as a precautionary measure, esophagoscopy was repeated and two small veins were injected. There had been no evidence of blood loss during twenty-two months since the first injection treatment of his esophageal varices, although two massive hemorrhages requiring transfusions had occurred at six weeks' intervals prior to the injection treatment. He has a normal blood picture and has grown normally in weight and height.

Case 3.—A white man aged 65, admitted to the emergency medical service, Parkland Hospital, Oct. 21, 1944, was in a state of profound medical shock following massive hematemesis. An outpatient record stated that he had partaken of as much as a pint daily of alcohol for years. The history, physical examination, recent x-ray examinations and laboratory studies had justified the working diagnosis of cirrhosis of the liver with bleeding esophageal varices. Within six hours after admission he had received 2,000 cc. of whole blood; but fresh red and clotted blood had continued to roll out of his mouth, such that he showed no improvement, was semiconscious and was pulseless at the wrists, and death seemed inevitable.

With the help of capable house officers he was removed to the operating room while whole blood was being administered into the veins of both feet and one arm. At esophagoscopy by one of us a large bleeding varix was injected with a total of 6 cc. of 5 per cent sodium morrhuate. The patient was soon returned to his room, where the blood pressure was 114/80. The following morning he was sitting upright in bed sipping milk. About six months later, at the age of 66, he died of other causes, having had no recurrence of bleeding.

Case 4.—A white woman aged 33 was admitted to the medical service of Dr. Tinsley R. Harrison, Southwestern Medical College, Nov. 1, 1944, having had two weeks of recurring hematemesis. There had been nine similar episodes in the previous five years. As an outpatient in 1937 she had had jaundice during antisyphilitic therapy. On the present admission the spleen was palpable four fingerbreadths below the left costal margin. The red cell count was 1,480,000. Preparation of the patient for needed splenectomy was interrupted repeatedly by massive hematemeses.

Esophagoscopy by one of us on Nov. 29, 1944 revealed three large venous trunks in the lumen of the lower third of the esophagus. These were well injected. Thereafter the red cell count maintained a safe level after transfusions. The patient was transferred to the surgical service and removal of the spleen, which weighed 1,325 Gm., was accomplished December 9. The tissue diagnosis was "(1) portal cirrhosis, Laënnec's type; (2) extensive degree of chronic passive hyperemia of the spleen." The patient was discharged from the hospital two weeks postoperatively. On her return to the outpatient gastroenterologic service, Jan. 24, 1945, visible veins in the lower part of the esophagus were again injected, and the patient was admitted to the hospital for twenty-four hours. Report to the outpatient service on June 6, 1945 revealed a normal weight of 155 pounds (70 Kg.). There had been no recurrence of bleeding; there was normal ruddy skin.

From the Division of Gastroenterology, Department of Medicine, Southwestern Medical College.

We were called on by the physicians named to care for these patients. Surgeons and radiologists participated in the diagnoses and corrective surgical procedures.

[1] Crafoord, Clarence, and Frenckner, Paul: Nonsurgical Treatment of Varicose Veins of the Esophagus, Acta oto-laryng. **27:** 422-429, 1939.

[2] Moersch, H. J.: Treatment of Esophageal Varices by Injection of a Sclerosing Solution, J. Thoracic Surg. **10:** 300-308, 1940.

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Case 5.—A white man aged 40, a farmer, came to our office June 14, 1941 because of recurring massive hematemeses. For ten years he had had recurring "swelling of the abdomen and feet." In March 1938 he had vomited blood and had been admitted to a hospital, where he was told that he had cirrhosis of the liver. His abdomen had been tapped and a large quantity of fluid had leaked from the needle puncture wound, saturating his bed over night. There had been an area of "match box dermatitis" the size of the palm on his right thigh for many years.

To physical examination the spleen was palpably enlarged; there was shifting dulness in the abdomen. The hemoglobin was 23 per cent; the red cell count was 1,220,000. He was referred to the surgical service of the medical college, where splenectomy was successfully done July 9, 1941. At surgery he was found to have a very small nodular liver. In February 1945 he again came to our office because of massive hematemesis and swelling of the abdomen and feet. There was again a tightly distended abdomen, which to percussion was that of ascitic fluid. Esophagoscopy by one of us revealed extensive varices which almost filled the lumen of the lower half of the esophagus. Beginning at the cardia, the veins were injected every third day for three times, a total of 20 cc. of 5 per cent sodium morrhuate being given. After transfusions of whole blood and plasma he was discharged from the hospital and returned to work six weeks later. He has regained his normal weight of 146 pounds (66 Kg.); pallor, the large ascites and the edema of the feet have disappeared. It is noteworthy now that seven years have elapsed since his first massive hematemesis and ascites and that he is symptom free and that during the two years prior to this admission he had lost no time from his work as shipping clerk, ten hours a day, on a six day a week wartime job.

Case 6.—A white man aged 51 was admitted to the service of Dr. E. R. Cox, Baylor University Hospital, May 20, 1945, after recurring massive hematemesis. In December 1944 careful study by Dr. Cox had revealed "enlarged spleen of unknown etiology." Hemorrhage recurred and the hemoglobin reached 6.9 Gm. on the third day after admission. To esophagoscopy by one of us on May 26 several large venous sacculations were seen projecting into the lumen of the lower third of the esophagus. When suction was applied to clear away mucus from a vein just above the cardia, two small continuous streams of blood appeared. The vein was well injected but the bleeding continued. Quickly there was an estimated 300 to 400 cc. of blood loss. Finally a half-inch gauze pack was placed firmly against the bleeding vein and the ever grateful patient was returned to his bed. The pack was removed the following morning. Liquids were allowed that day, a soft diet was given the following day, and the patient was discharged on the fourth day after injection treatment. One month later he was ambulatory and had a normal ruddy skin; his ascites had disappeared. His spleen was still enlarged.

Case 7.—A white man aged 66 came March 26, 1945, having been referred to the gastroenterologic service, Southwestern Medical College, to have injection treatment of esophageal varices. There had been massive hematemesis in April, August and November of the preceding year, after each of which he quickly recovered following transfusions of whole blood. He had had typhoid thirty-six years before and had been told that he had an attack of coronary occlusion four years before the present admission. The patient was of slender build; the abdomen was flaccid and the spleen was palpable three fingerbreadths below the left costal margin. There were protruding hemorrhoids.

On admission the hemoglobin was 7.4 Gm. The icterus index was 1. A cephalin-cholesterol flocculation test at twenty-four hours was 3 plus, at forty-eight hours 4 plus. The sulfobromophthalein test revealed 66 per cent of dye retained fifteen minutes, 25 per cent thirty minutes, 8 per cent forty-five minutes and 5 per cent one hour. The Kline reaction was negative. At x-ray examination April 2 the admitting diagnosis of esophageal varices was verified. On April 4 esophagoscopy by one of us revealed the lower half of the esophagus occluded by multiple large veins. Three veins were injected, one each to the patient's right anterior, left anterior and right posterior, a total of 8 cc. of 5 per cent sodium morrhuate. There was an estimated 75 cc. blood loss. His esophageal veins were injected again April 11, 8 cc.; April 18, 10 cc. It was then thought that he had enough injections, but we were dubious of his recovery because of large gastric varices which appeared in the x-ray film and which were also visible to gastroscopy. The opinion of the surgical service, on repeated consultation, was that his 66 years and his general depletion contraindicated splenectomy or other corrective surgery.

At the conclusion of the injection treatments the hemoglobin was 8 Gm. There was recurrence of large hemorrhage April 24, 27 and 30 and May 3, 6 and 9, followed by gradual decline and demise May 11. At autopsy the pathologist, Dr. Charles T. Ashworth, reported that portal hypertension, with resultant esophageal varices, had evidently been the result of obstruction to the portal vein by a mass of scar tissue at the porta hepatis. The spleen weighed 1,095 Gm. There were multiple 1 mm. ulcerations of varices in the lower third of the esophagus, obviously the site of recent hemorrhage. There was no evidence of bleeding from the veins of the stomach. The gastric mucosa was quite smooth and intact, although large veins could be seen in the fundic portion of the stomach.

Case 8.—A white girl aged 17 was admitted to the service of Dr. Paul Thomas, Baylor University Hospital, Oct. 22, 1944, soon after a large vomitus of dark red clotted blood. Banti's syndrome had been diagnosed elsewhere and the patient had had splenectomy ten years before and an omentopexy eighteen months before. The patient, a college sophomore, appeared to be in excellent health except for moderate pallor; the pulse rate was 120, the temperature 102 F., the blood pressure 104/58, the height 5 feet 4 inches (162.5 cm.) and the weight 118 pounds (53.5 Kg.). On admission the hemoglobin was 6.9 Gm., red blood cell count 2,240,000, white blood cell count 16,200, 23 bands, 67 segmented and 13 lymphocytes. The clotting time was 55 seconds, the bleeding time 2 minutes and 30 seconds. The prothrombin time was 42 seconds, or 95.6 per cent of normal. Thirty-six hours after admission, esophagoscopy by one of us revealed multiple varices in the lower third of the esophagus. Scarring over the esophageal veins indicated the sites of former ruptures. Three prominent venous trunks in the lower part of the esophagus were injected with a total of 5.5 cc. of 5 per cent sodium morrhuate. The patient was discharged ambulatory four days after the injection of the varices. As a precautionary measure she was readmitted four months later and the veins were reinjected.

COMMENT

Esophageal varices, to direct inspection through the esophagoscope, are seen in some instances so large that they softly occlude the esophagus.

Several patients have complained that substernal and upper abdominal distress precede hematemesis such that the patient and the patient's family can predict the approaching catastrophe of hemorrhage. It appears, therefore, that persistent substernal distress occurring in a patient having known or suspected esophageal varices would indicate the need for x-ray study and probably esophagoscopy and injection of any veins large enough to produce symptoms.

We have noted that patient 3, in a critical state of shock immediately before the injection, appeared in no danger at all a few moments after the injection and was sitting upright in bed sipping milk ten hours later. It would thus appear safe to do the injection treatment after the patient is in the proper hospital environment with reasonable assurance as to the diagnosis and with adequate facilities, particularly typed whole blood, available. The contraindications to esophagoscopy should of course always be kept in mind.

In the instance of case 4, preparation for necessary splenectomy was repeatedly disrupted by massive hematemesis. Only after the injection of sclerosing solution into the esophageal varices did the hematemesis cease and the red blood cell count maintain a safe level for surgery.

As in case 7, hemorrhage appears not infrequently from esophageal varices but is most rarely proved to be from gastric varices. This fact, as Kegaries[4] showed, is best explained by the anatomy of gastric veins, which tend to be subserosal and are held more firmly by the less elastic structure of the stomach, while in the esophagus varicose veins tend to be submucosal and are held less firmly by the areolar tissues of the esophagus, tending to sacculation and protrusion into the lumen of the esophagus, where they are more vulnerable to ulceration and rupture.

From the foregoing, the ultimate evaluation of treatment of esophageal varices by injecting sclerosing solutions will have to await time and careful observation of these patients. It is true nevertheless that the results thus far observed tend surely to justify the procedure.

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VENOUS THROMBOEMBOLIC DISEASE

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The active rational medical prophylaxis of pulmonary embolism by the use of heparin has been discouraged because of the involved technical procedures required for maintaining continuous anticoagulant effects. Although recent reports on the routine use of dicumarol have been promising,[1] the potential hazards, the unpredictable treatment failures and the requisite complicated laboratory controls do not make this drug the anticoagulant of choice.[2] The therapeutic attack up to the present has been based, for the most part, on the surgical interruption of the continuity of the clot-bearing vein or veins. Our purpose in this communication is to propose a safe, rational method of heparinization for the conservative treatment of thromboembolic disease which obviates previous objections to the use of this drug.

Recognition of the increasing incidence of venous thrombosis in the calf of the leg and in the plantar area has stimulated renewed interest in the problem of intravascular clotting. The statistical surveys of Nygaard[3] and others and the experimental and pathologic studies of Rossle,[4] Neumann[5] and Frykholm[6] have further emphasized the importance of venous thrombi in the pathogenesis of pulmonary embolism. Hunter, Sneeden, Robertson and Snyder[7] stress the fact that embolic phenomena may be the first sign of clinically silent phlebothrombosis of the deep calf veins.

The pathogenesis of intravascular clot formation in bland phlebothrombosis is imperfectly understood. Probably the most important single factor favoring thrombus formation in the lower extremities is the sudden confinement to bed of a previously ambulant individual, especially the thrombophile, without benefit of measures which favor the maintenance of an efficient venous circulation. The formation of clot in a small vein often is followed by its propagation into the larger venous channels. This propagation, especially in the immediate postoperative period, may well be explained by the increased platelet count, enhanced agglutinability or "stickiness" of the platelets, hemoconcentration, increased viscosity of the plasma, hyperglobulinemia and increased fibrinogen content.

It is a well established fact that a rise in the blood platelet count follows childbirth or a surgical operation, and this is believed to be a contributory factor in initiating postpartum or postoperative venous thrombosis. The increase begins about the fourth day after operation or delivery, attains its maximum about the tenth day and then tapers off, reaching normal by the twenty-first day. The period of hyperthrombocytemia corresponds roughly to the period in which venous thrombosis generally occurs. The correspondence, however, is not complete.

To account for this discrepancy, MacKay[8] and later Wright[9] postulated a second thrombogenic factor, an increased agglutinability or adhesiveness of the thrombocytes or blood platelets. This phenomenon also begins about the fourth day postoperatively or post partum and reaches its peak about the tenth day, when nearly 90 per cent of the platelets are adherent. The stickiness then gradually decreases and the platelets are restored to normal by the twenty-first day. For a more detailed discussion of etiology, reference should be made to the papers of Ochsner,[10] Ochsner and DeBakey,[11] Duryea,[12] Frykholm[6] and Bauer.[13]

The basic clot, composed essentially of platelets and leukocytes, represents the so-called white head on which is superimposed a collection of erythrocytes to form the friable red tail. As the blood clot grows, the soft red tail usually waves free in the vascular current. If the thrombus does not become detached, organization soon takes place with fibroblastic proliferation and firm adherence of the thrombus to the vessel wall followed by recanalization to a variable degree. If, however, the soft red clot breaks off and is carried into the swiftly moving vascular stream, it immediately becomes an embolus and causes pulmonary infarction. It is thus evident that, lacking precise knowledge of the initiating factor in thrombosis and, hence, a logical therapeutic

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Aided by grant of funds from friends of the Jewish Hospital of Brooklyn

From the Thrombo Embolic Disease Research Unit, Leo Loewe, M D, Director, Jewish Hospital of Brooklyn.

Contributions were made by Dr. H. J Greene, Dr. B S Epstein, Mr M. Russell, Miss F. Kashdan and Miss M Kozak of the Thrombo Embolic Disease Research Unit.

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approach at the source, therapy must be confined to either an interruption of the vascular stream proximal to the site of clot formation or to rendering the blood incoagulable.

Division of thromboembolic disease into thrombophlebitis and phlebothrombosis is purely arbitrary, since elements of both may be present in any case of venous thrombosis. In the former, clotting is believed to be the result of alteration of the vascular endothelium from mechanical trauma, bacterial invasion or chemical injury, while in the latter it may be due to venous stasis or alterations in the cellular and fluid constituents of the blood.

Many postoperative and postpartum venous thromboses result from an infective initiating factor, with consequent thrombophlebitis. In these cases, diagnosis is relatively simple and is based on the presence of fever, local pain, swelling and tenderness. The changes in the vascular endothelium usually cause the clot to be firmly attached to the vessel wall. Such a clot is unlikely to become detached unless (1) a red clot formed proximal to the mixed thrombus is broken off (which occurs in 10 to 15 per cent of cases) or (2) suppurative liquefaction of the clot occurs with the production of infective emboli.

In bland phlebothrombosis, on the other hand, the clot is loosely attached to the vessel wall and consists in the main of a red clot which waves freely in the vascular stream. The onset of clotting is insidious, and the usual clinical features of inflammation are absent. Localized calf or plantar pain and positive calf tenderness on dorsiflexion of the foot, Homans' sign,[14] establish the diagnosis, which may at times be confirmed by phlebography. The value of the latter procedure, first introduced by dos Santos[15] and popularized by Bauer,[13] Fine[16] and others,[17] has been questioned because of the unpredictable results obtained by the technics in use. In practice it has been common experience that, when information was most urgently needed, the phlebograms were equivocal or uninformative. Unfortunately, at times the first evidence of phlebothrombosis may be an alarming or even fatal pulmonary embolization.

The surgical approach to the problem of thromboembolism was first initiated in America by Homans[18] and later elaborated by Welch and Faxon,[19] Fine,[16] Allen and his associates,[20] de Takats[21] and others. The knowledge that the majority of such emboli stem from the veins of the lower extremities led these investigators to divide the suspected vein, after preliminary thrombectomy, on the faintest suspicion of phlebothrombosis. Indications for vein ligation have been based for the most part on clinical signs, whether or not corroborated by positive phlebograms (Allen,[22] Ochsner[23]).

In the few years during which unilateral superficial femoral vein ligation has been practiced, it has become apparent that fatal pulmonary emboli may derive from an unsuspected thrombotic process on the contralateral side, so that bilateral superficial vein interruption has now become common practice. Even this procedure, the magnitude of which is unduly minimized by recent observers, does not offer absolute protection against embolization, although Allen[22] reports only 5 per cent of subsequent sublethal embolization following bilateral superficial femoral vein ligation, with no instance of a fatal embolus in 579 femoral vein interruptions. Nevertheless there are known fatalities in which the offending embolus originated from the profunda femoris vein proximal to the site of ligation of the superficial femoral vein. This has prompted Linton[22] to divide the common femoral vein. The resultant edema from this procedure has admittedly been troublesome and has been observed to persist for a year or two or longer. Since embolization from the profunda femoris may occur, Homans[24] has been impelled to advocate common iliac and even inferior vena cava ligation. However, Homans admits that technical difficulties militate against thrombectomy, particularly in a phlebothrombosis of long standing, so that ligation must of necessity be carried out in continuity, even if a clot is present proximal to the ligature. Obviously embolization from the proximal thrombus is not beyond the realm of possibility.

It must be stated that, although the majority of emboli derive from the peripheral veins, the initiating site may at times be the pelvic veins, for which surgical intervention, if it is to be effective, must perforce be a formidable procedure. Finally, in those cases of long standing thrombophlebitis, phlegmasia alba dolens, in which multiple infarcts have occurred, any surgical intervention short of vena cava ligation offers little prospect of cure.

It thus appears that the pendulum of surgical therapy has reached the peak of its swing and the relatively innocuous procedures of a few years ago are being supplanted by operations of considerable magnitude. In view of the failure to achieve a complete thrombectomy consistently in cases in which adherent clot was found far proximal to the phlebotomy or because of the hazard of subsequent postoperative embolizations, whether or not they are sublethal, Bancroft[25] has advocated the postoperative use of heparin. Indeed, Allen[22] admits that for patients with multiple infarcts heparinization has been used with definite benefit.

Although saving of life is the prime consideration of surgery, the resultant edema is most troublesome to the patient. Operative procedures which interrupt not only venous but also lymphatic channels contribute considerably to this edema. Admittedly, conservative treatment without heparin, consisting in the main only of bed rest and sedation, may occasion considerable edema in those who survive. In our experience the supplemental use of subcutaneous heparin results in minimal residual edema, certainly far less than that observed following operative intervention.

Briefly, it is apparent that the surgical approach, while efficacious in the majority of instances, has its limitations, although in all fairness it must be stated that a great number of lives have been saved which otherwise would have been lost if surgical interruption of the venous systems had not been practiced since no alternative conservative method of management has heretofore been generally available.

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In reviewing the shortcomings of surgery for the treatment of thromboembolic disease, it is apparent that the anticoagulants assume prime importance. The properties of heparin which render it uniquely applicable in thromboembolic disease are that it prevents the formation of thromboplastin from platelets, it prevents, with the aid of a plasma cofactor, the conversion of prothrombin to thrombin, and finally it forms with serum albumin a strong antithrombin (Quick[26]). In other words, the continued formation of blood clot is inhibited by heparin, and repair of existing thrombi inevitably takes place at a more rapid tempo. It is evident that, regardless of the site of the thrombosis, heparin may be utilized because of its systemic effect. Its value in the prophylaxis and treatment of thromboembolic diseases has been established by numerous investigators, including Crafoord[27] and Murray.[28]

The routine use of heparin, however, has been limited by the expense, by the huge amount of drug required for the individual case and by the cumbersome method of administration, which requires a continuous venoclysis or repeated daily intravenous dosage. The restriction of motion of the patient, the almost absolute certainty that superficial angiitis would eventually occur at the site of injection and the haphazard control of the clotting time with these methods of administration render heparin therapy useless unless constant untiring supervision is available.

TABLE 1.—*Heparin/Pitkin Menstruum Formulas*

With Vasoconstrictors	LP-0 (Mg.)	LP-8 (Mg.)	LP-9 (Mg.)	LP-12 (Mg.)
Crystalline sodium salt of heparin.	100.0	200.0	100.0	150.0
Epinephrine hydrochloride.........	1.0	1.0	1.0	1.0
Ephedrine sulfate....................	25.0	25.0	25.0	25.0
Chlorobutanol........................	0.5	0.5	0.5	0.5
Eucupin dihydrochloride............	1.0	1.0	1.0	1.0
Pitkin menstruum, q. s..........ad	1.0 cc.	2.0 cc.	2.0 cc.	1.0 cc.
Without Vasoconstrictors	**LP-14 (Mg.)**	**LP-11 (Mg.)**	**LP-10 (Mg.)**	**LP 13 (Mg.)**
Crystalline sodium salt of heparin.	100.0	200.0	100.0	150.0
Chlorobutanol........................	0.5	0.5	0.5	0.5
Eucupin dihydrochloride............	1.0	1.0	1.0	1.0
Pitkin menstruum, q. s..........ad	1.0 cc.	2.0 cc.	2.0 cc.	1.0 cc.

In an attempt to achieve prolonged absorption of heparin, pellet and capsule implantation in experimental animals was attempted. Erratic, unpredictable effects were observed. However, a slower and more equable distribution of heparin was obtained by incorporation of the drug in the Pitkin menstruum,[29] developed to regulate the rate of release of water soluble drugs injected intramuscularly or subcutaneously.[30]

The ingredients of the Pitkin menstruum are gelatin 15 to 30 per cent, dextrose 5 to 12 per cent, glacial acetic acid 0.5 per cent and sufficient distilled water to make 100 per cent. The rate of liberation of the contained heparin is inversely proportional to the viscosity of the menstruum; the optimum percentages of gelatin and dextrose were found to be 18 and 8 per cent respectively for the preparation containing heparin.

Heparin/Pitkin menstruum is a preparation of various amounts of heparin sodium salt, with or without vasoconstrictor drugs, dissolved in the Pitkin menstruum. This is done so that the dosage may be varied as indicated in the treatment of the individual patient. In general, the anticoagulant action of heparin sodium salt combined with vasoconstrictor drugs (in the menstruum) is more prolonged than the same amount of heparin sodium salt (in the menstruum) without vasoconstrictor drugs. In thromboembolic venous disease heparin with vasoconstrictor drugs is customarily employed. It is more advisable, however, to use heparin without vasoconstrictor drugs in thromboembolic arterial disease in order to eliminate the complicating factor of arterial spasm. This necessitates more frequent administration because of the more rapid depletion of the individual deposit.

The ampules which have been prepared for clinical use contain various amounts of heparin sodium salt, with or without vasoconstrictor drugs, and are as in table 1.

Body weight and individual reactivity dictate the amount of heparin/Pitkin menstruum to be used in a given case. For the initial injection, body weight is used as a guide. Patients weighing up to approximately 150 pounds (67.8 Kg.) should be given an initial dose of 300 mg. of heparin sodium salt; patients over this weight should be given an initial dose of 400 mg. Subsequently the dosage should be adjusted according to the intensity of the "heparin effect" as estimated by the coagulation time.

Any desired dose of heparin, with or without vasoconstrictor drugs, can be given by combining the contents of two or more ampules. It has never been necessary to employ more than 400 mg. of heparin for any single deposit. This dose is arrived at by combining two ampules, each containing 200 mg. of the drug. When ampules which contain the vasoconstrictor drugs are used, not more than one such ampule should be included in a combination of ampules administered in one single injection.

METHOD OF ADMINISTRATION OF HEPARIN/PITKIN MENSTRUUM BY SUBCUTANEOUS INJECTION

1. Warm the ampule(s) gently by immersing in a glass of hot tap water until the contents become fluid.
2. Shake well to disperse any precipitated material.
3. Draw the contents into a sterile 5 cc. or 10 cc. syringe, using a sterile needle, gage 18, of 2 inches length. After the syringe has been filled, attach a sterile needle, gage 19 or 20, of 2 inches length, for the actual deposition.
4. Inject the contents immediately into the deep subcutaneous tissues, preferably in the anterior or lateral aspect of the thigh. When more than one subcutaneous deposit is required, use the right and left thighs alternately and avoid sites of previous injections. Do not inject into sites where pressure may be exerted on the injection area.
5. Be certain that the contents of the syringe are not too hot prior to the injection. The syringe and contents should feel only slightly warm.
6. Do not apply either heat or cold to areas of deposition at any time.

Use the entire contents of the ampule(s) (300 mg. heparin sodium salt for the average individual). This dose should be sufficient to keep the patient heparinized for at least two days. If the patient must be heparinized for a longer period, administer the 300 mg. every second day throughout the requisite period. After two or three deposits on this dose schedule it may be possible, if the patient's response warrants it and if the coagulograms are satisfactory, to space the remaining implants every third day. If the patient receives a blood transfusion during the period of heparinization, administer a standard dose of 300 mg. immediately following the transfusion, irrespective of when or how many previous deposits have been given.

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[26] Quick, A. J.: The Hemorrhagic Diseases and the Physiology of Hemostasis, Springfield, Ill., Charles C Thomas, Publisher, 1942.

[27] Crafoord, C., and Jorpes, E.: Heparin as a Prophylactic Against Thrombosis, J. A. M. A. **116:** 2831 (June 28) 1941.

[28] Murray, G. D. W.: *Heparin in Surgical Treatment of Blood Vessels*, Arch. Surg. **40:** 307 (Feb.) 1940. Murray, G., and MacKenzie, R.: Postoperative Thrombosis and Embolism, Am. J. Surg. **57:** 414, 1942.

[29] Roche-Organon, Inc., Nutley, N. J., supplied heparin in the Pitkin menstruum. Dr. Ralph D. Shaner of that organization aided with his interest and cooperation.

[30] Loewe, L.; Rosenblatt, P., and Lederer, M.: A New Method of Administering Heparin, Proc. Soc. Exper. Biol. & Med. **50:** 53, 1942. Loewe and Rosenblatt.[33]

METHOD OF FOLLOWING THE PATIENT'S CLINICAL COURSE

The effect of heparin is judged by and based on determination of the blood coagulation time, which should be done at least once a day during the period of heparinization. Determination by means of the capillary tubes is totally inaccurate and should not be used. A modification of the Lee-White method [31] for determination of blood coagulation time is recommended. The procedure is as follows:

1. Place four chemically clean dry 75 by 10 mm. test tubes in a rack.
2. With a sterile dry syringe and needle withdraw a little less than 2 cc. of venous blood from the heparinized patient.
3. Distribute a little more than 0.35 cc. of blood into each test tube and allow the tubes to stand until the test is completed.
4. The test is timed by stop watch from the moment the vein is negotiated to the time clotting is noted in the test tubes. The normal values usually range from nine to fifteen minutes.

SUGGESTIONS AND PRECAUTIONS

1. All glassware, syringes and needles must be absolutely dry. Moisture, alcohol and other substances invalidate the determination.
2. The vein must be cleanly negotiated. If difficulty is encountered, it is best to use a fresh needle and syringe. Even a small amount of tissue juice aspirated into the syringe will give a fallacious result.
3. Once the blood is placed in the test tubes, they must be disturbed as little as possible while observing for the end point. It will be noticed that well heparinized blood will sediment very rapidly. The tube should not be shaken after sedimentation of the blood. Look for clotting in the red cell layer as well as in the plasma layer by gently tilting the tubes. In unclotted blood the red cell layer will flow slowly as the tube is angled.
4. If clotting occurs at different times in the various tubes, average the three closest figures.
5. Excessively high coagulation times—over an hour—are unnecessary and indicate waste of the anticoagulant drug.
6. The effect of a single therapeutic deposit should last for forty-eight hours or more. Satisfactory results have been attained over protracted periods (five weeks) with as little as 2,300 mg. of heparin. At least 10,500 mg. would have been required to achieve the same results with intravenous commercial aqueous heparin had it been feasible to administer it over such a long span of time.

REACTIONS AND COMPLICATIONS IN THE USE OF HEPARIN/PITKIN MENSTRUUM: THEIR TREATMENT

1. Following the administration of LP-0, LP-8, LP-9 and LP-12 (ampules containing vasoconstrictor drugs) the patient will occasionally complain of palpitation and nervousness. These reactions require no treatment and disappear within a short time.
2. Digitalis inhibits the anticoagulant action of heparin. Avoid the use of this drug during periods of heparinization.
3. Intragluteal administration may be employed with perhaps less local discomfort, but absorption is too rapid. An important advantage of the subcutaneous approach is that the anticoagulant effect may be considerably retarded or accelerated by the application of ice bags or heat, respectively, to the site of injection; it may be suspended altogether by means of prolonged local refrigeration and/or pressure above and below the site, together with adjunct measures such as the transfusion of fresh whole blood or globin injections.
4. The administration of subcutaneous heparin/Pitkin menstruum is accompanied by a variable degree of fever, and pain, swelling and tenderness at the site of inoculation. These discomforts, due primarily to the subcutaneous deposit of heparin,[32] are usually not excessive, but adequate sedation should be prescribed. Even when more pronounced, these disadvantages of the subcutaneous administration are far outweighed by the benefits of the treatment and the added comfort of knowing that with the subcutaneous route the rate of release of the drug is under control at all times.

RESULTS; ANALYSIS OF CASES

The original publication [33] reported 15 cases of thrombophlebitis or phlebothrombosis successfully heparinized by this method. The series of 125 cases,[34] presented in table 2, which is the subject of the present report, represents virtually all the types of venous thromboembolic disease. Some of the categories have afforded more cases than others, but on the whole there are a sufficient number of cases for purposes of observing and evaluating the clinical deportment of subcutaneous heparin in thromboembolic disease. The results have been most gratifying, being signally successful in thrombophlebitis irrespective of etiology (cases 5, 7, 8, 9, 10 and 11). The criteria of satisfactory response are the rapidity of subsidence of edema, prompt improvement in pain and discomfort, reduction in morbidity and the degree of residual edema, and the clinical behavior in the presence of pulmonary embolization.

Table 2.—*Composite of All Cases of Venous Thromboembolic Disease Treated with Subcutaneous Heparin in the Pitkin Mentsruum*

Classification of Thromboembolic Disease	Number of Cases	Statistics of Pulmonary Embolism		
		Number of Cases	Deaths	
			Number	Percentage
Thrombophlebitis and/or phlebothrombosis, postoperative	46	14	2	14+
Thrombophlebitis, thrombophiles, carcinoma, varicose veins, etc.	32	13	0	0
Thrombophlebitis and/or phlebothrombosis, venous ligation	13	9	1	11+
Thrombophlebitis, postpartum	14	3	0	0
Thrombophlebitis, postinfectious	9	0	0	0
Thrombophlebitis, post-traumatic	6	3	1	33+
Thrombophlebitis, migrans	5	0	0	0
Total	125	42	4	9.5

The final judgment in any treatment program for thromboembolic disease is predicated on the statistics with respect to pulmonary embolization. The detailed clinical data relative to pulmonary embolization in this series of 125 cases will be made the subject of a comprehensive report. It is noteworthy however that, of the 125 patients, 42 had from one to six pulmonary embolizations prior to initiating subcutaneous heparin therapy. There were four fatalities in this series of 42 cases, or

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[31] Gradwohl, R. B. H.: Clinical Laboratory Methods, ed. 3, St. Louis, C. V. Mosby Company, 1943, p. 514.

[32] Walker, J., Jr.: The Efficacy of Heparin Administered by Intravenous, Intramuscular and Subcutaneous Routes and a Study of the Effect of Five Bacteriostatic Agents on Heparin Action, Surgery **17:** 54, 1945.

[33] Loewe, L., and Rosenblatt, P.: A New Practical Method for Subcutaneous Administration of Heparin: Preliminary Report, Am. J. M. Sc. **208:** 54, 1944.

[34] This series of cases was recruited mostly from the Departments of Surgery, Medicine, Gynecology and Obstetrics of the Jewish Hospital, Brooklyn.

9.5 per cent. Brief comment concerning these four deaths is essential in order to gain proper perspective regarding this aspect of our problem. Two of the fatalities came early in our experience and served as an *object lesson for standardizing and formulating our present program of therapy and dosage schedules* (case 1). The third occurred in an obese woman who developed thrombophlebitis with pulmonary emboli following mastectomy for advanced massive carcinoma. This is considered a treatment failure although the patient was in profound circulatory collapse throughout the entire postoperative period and there was some doubt as to the cause of death, no necropsy being performed. The fourth fatality followed sequential femoral vein ligation for recurrent pulmonary embolization incidental to postoperative phlebothrombosis. Subcutaneous heparin was discontinued prematurely two days after the initial left femoral ligation because the pulmonary findings were attributed to virus pneumonia, which was prevalent at the time. The right femoral vein was ligated about ten days after the left femoral vein ligation. Lethal pulmonary embolization followed the third day after the right femoral vein ligation; necropsy disclosed old adherent thrombi in the left iliac and left hypogastric veins which were probably the source of the emboli found occluding the right pulmonary artery and main branch of the left lower lobe. This case must be catalogued as a treatment failure for both thrombectomy and vein ligation and supplemental subcutaneous heparin therapy, although the latter was suspended after much too short a span of treatment. As an offset to these treatment failures mention may be made of 4 patients with multiple pulmonary emboli despite vein ligation with complete recovery following the use of subcutaneous heparin preparation (case 4).

A particularly significant and informative group consisted of the 9 patients who were successfully treated with heparin in the Pitkin menstruum following single or multiple massive pulmonary embolizations without any manifestations of peripheral vein involvement; these patients could not conceivably be subjects for proximal vein ligation (case 3). Finally, it is worthy of comment that in 5 patients subcutaneous heparin was successfully employed following failure with dicumarol and/or aqueous heparin by vein (case 6).

Case 1.—*Postoperative femoral phlebothrombosis with multiple pulmonary emboli; apparent excellent response to subcutaneous heparin; anticoagulant effects had disappeared when patient was allowed out of bed; lethal pulmonary embolus.*[35]

N. S. W., a white man aged 46, had a subtotal gastrectomy performed for gastric ulcer with carcinomatous degeneration. The postoperative course was complicated by phlebothrombosis of the left lower extremity, which was followed by two episodes of pulmonary infarction, corroborated roentgenographically. The patient was treated with subcutaneous heparin and given four injections totaling 1,200 mg. of heparin over a period of eleven days. The clinical signs in the left lower extremity subsided and the patient was allowed out of bed four days after the last heparin deposit. In the process of getting out of bed he suffered a massive pulmonary embolization and died.

The unfortunate outcome in this early case served as an object lesson. It was apparent that the patient should not have been allowed out of bed prematurely and at a time when he was not actively heparinized. Cases of phlebothrombosis with pulmonary infarction require periods of heparinization longer than the ten to fourteen days usually sufficient for uncomplicated venous thrombosis. Subsequent patients in this category were therefore mobilized after a *minimum* three week span of treatment and during the stage of active heparinization. With this program the results have been signally successful.

Case 2.—*Postoperative bilateral phlebothrombosis successfully treated with subcutaneous heparin.*

H. B., a white man aged 52, was admitted to the Jewish Hospital of Brooklyn on Jan. 31, 1943 with a diagnosis of perforated peptic ulcer. This was operated on immediately and primary closure was performed. On February 8 the patient had an evisceration, which was reduced under general anesthesia. On March 6 he developed a bilateral phlebothrombosis of the deep femoral veins. He was treated with heparin, which was administered by the subcutaneous method. He was given a total of 1,200 mg. of the drug in six deposits over a period of fourteen days. The patient made a complete and uneventful recovery without sequelae.

This was a case of simple phlebothrombosis following a surgical procedure. A two weeks course of treatment with subcutaneous heparin was sufficient to control the thrombotic complication despite its bilateral distribution.

Case 3.—*Multiple postoperative pulmonary infarctions without evidence of peripheral phlebothrombosis; unsuccessful outcome with conservative management and intravenous heparin; successfully treated with subcutaneous heparin.*[36]

C. L., a white man aged 26, had an appendectomy for acute appendicitis. Eight days postoperatively he suffered a right pulmonary embolization followed by bloody expectoration. He was treated conservatively with bed rest, sedatives and oxygen. Sixteen days after operation there was another episode of pulmonary embolus with radiographic signs of right lung infarction. The following day intravenous heparin was instituted, 200 mg. daily being given by continuous drip. During this period there were febrile reactions necessitating frequent interruptions of the venoclysis. On the thirty-first postoperative day phlebitis of the left arm and foot of the regional angiitis variety was noted. This progressed despite the intravenously administered heparin. On the thirty-fifth postoperative day there was another massive pulmonary infarction while intravenous heparin was still being given. The following day subcutaneous heparin therapy was instituted. A total of 1,600 mg. of heparin in five doses was deposited over a period of sixteen days. The patient responded satisfactorily and was allowed out of bed while still actively heparinized. He was discharged from the hospital without further trouble and has remained asymptomatic.

Of significant interest in this case was the fact that three massive pulmonary infarctions occurred without evidence of thrombotic disease in the lower extremities other than the superficial processes due to the continuous venoclysis. This case illustrates the almost certain futility of proximal venous ligation, since it was impossible to know where the emboli originated. Furthermore, the success attending the use of subcutaneous heparin is in direct contrast to the failure of the aqueous preparation when given by vein.

Case 4.—*Postoperative thrombophlebitis of recurrent and migratory character; bilateral saphenous vein ligations with postligation pulmonary embolizations; thrombophlebitis of the left femoral system successfully treated with subcutaneous heparin.*[37]

E. S., a white married woman aged 35, a registered nurse, was admitted to the Jewish Hospital of Brooklyn with a history of hysterectomy for fibroid uterus seven months previously at Misericordia Hospital, New York. Postoperatively she developed a right saphenous thrombophlebitis and was kept in bed for six weeks. Two weeks after discharge she developed a left saphenous thrombophlebitis. This subsided, but thereafter recurrent bouts of phlebitis took place until three months prior to admission, when first one and then the other saphenous vein was ligated. Following the second ligation she suffered several episodes of pulmonary embolization. With conservative management the lungs gradually cleared and she was discharged from the hospital. Several days prior to admission to this hospital she developed a severe thrombophlebitis involving the deep left femoral system. She was treated with subcutaneous heparin and received a total of 1,800 mg. in six doses over a period of fourteen days. She was discharged on the twentieth hospital day and has remained well to date, eighteen months after therapy.

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[35] *Courtesy of Dr. P. C. Potter, Doctors Hospital, New York.*

[36] Courtesy of Dr. Abraham Mandelberg, Israel Zion Hospital, Brooklyn.

[37] Courtesy of Dr. Lester Breidenbach.

This case is of particular interest since the prophylactic vein ligations prevented neither subsequent pulmonary embolization nor the formation of fresh thrombi in the deep femoral system of veins. Therapy with subcutaneous heparin abruptly interrupted the migratory and recurrent character of the disease, and the patient has remained well.

Case 5.—*Initial, clinically obscure, thrombophlebitis with migration and pulmonary infarctions; bilateral femoral vein ligations with postligation heparinization.*[38]

N. G., a white woman aged 50, a physician's mother, began to complain of pain in the left calf region three weeks prior to admission. Two weeks later there was swelling of the left leg. On the day of admission there was a sudden onset of shortness of breath associated with pain in the left side of the chest made worse by deep inspiration. There was no hemoptysis. The patient was treated expectantly. Although repeated examinations were made, a definite diagnosis of thrombophlebitis was not possible. During the fourth hospital week there was a sudden rise in temperature unassociated with physical findings. During the sixth hospital week there was a definite pulmonary episode. The week previously the patient had been complaining of aching pain throughout the right leg, but physical findings had been negative. At this time it was decided that the patient had a bilateral femoral thrombophlebitic process with multiple pulmonary infarctions. X-ray and electrocardiographic evidence indicated that there had been at least three such episodes. Phlebograms were attempted but were unsuccessful. It was decided that a bilateral femoral vein ligation be done. At operation Dr. G. P. Pennoyer found the left femoral vein to be completely thrombosed and the right thrombosed and partially organized. Because of the proximal extent of the thrombotic process it was thought that operative interruption of the continuity of the veins would probably not suffice. Accordingly, ten hours following the procedure the patient was started on subcutaneous heparin therapy. She was given a total of 1,500 mg. of heparin over a period of twenty-three days in five deposits. At the end of this time she was allowed out of bed. On being allowed to walk about, she noticed swelling of both legs; but this was controlled somewhat by the use of elastic stockings.

The importance of this case lies in the fact that bilateral femoral ligation was not considered sufficient to prevent the possibility of future pulmonary embolization. Despite the surgery, therefore, adjuvant therapy with subcutaneous heparin was necessary to treat this patient successfully.

Case 6.—*Postoperative and traumatic thrombophlebitis; unsuccessful prophylactic administration of dicumarol and intravenous heparin; prompt response to subcutaneous heparin.*[39]

J. M., a Negro aged 37, underwent a right inguinal herniorrhaphy. During the course of the operation the femoral vein was punctured and it bled freely. Bleeding was controlled by packing followed by dissection below the inguinal ligament, where pressure on the femoral vein was applied. The rent was then closed without difficulty by means of several fine silk sutures. Postoperatively dicumarol was given by mouth and heparin by continuous intravenous drip, with satisfactory prolongation of the coagulation time. Dicumarol was continued for eight days with no change in the prothrombin time. On the sixth, eighth and thirteenth postoperative days subcutaneous hematomas were aspirated from the upper end of the wound. On the fourteenth postoperative day the patient developed a typical and massive thrombophlebitis of the right lower extremity. Two days later therapy with subcutaneous heparin was begun. He received a total of 1,200 mg. of heparin given in three doses over a period of ten days. The obvious diminution of swelling and tenderness on the second day were remarkable, and the temperature subsided on the ninth day. He was discharged on the forty-third postoperative day in excellent condition.

This case was noteworthy because of the failure of dicumarol and intravenous heparin to prevent the formation of a clot in a femoral vein accidentally injured during herniorrhaphy. Despite this evident thrombotic tendency, the response to subcutaneous heparin was prompt and sustained.

Case 7.—*Postcesarean section; left femoral vein thrombophlebitis successfully treated with subcutaneous heparin.*[40]

B. E., a white woman aged 30, primipara, secundigravida, had an elective cesarean section on June 14, 1944. Thirteen days later she developed an acute thrombophlebitis of the left femoral vein. Symptoms and signs increased in intensity during the next three days, and therapy with subcutaneous heparin was begun on the sixteenth postoperative day. She received a total of 1,100 mg. of heparin over a period of ten days in eight doses. She responded rapidly and was allowed out of bed on the tenth day of treatment and was discharged well several days later.

Table 3.—*Measurements of Extremities in Case 9*

	April 27		May 16	
	Right	Left	Right	Left
Ankle	19.7 cm.	22.2	19.0	20.0
Calf	30.2	33.4	27.0	28.6
Thigh	48.5	58.7	47.0	48.3

Case 8.—*Postpartum unilateral phlegmasia alba dolens successfully treated with subcutaneous heparin.*[41]

L. R., a white woman aged 25, developed a massive thrombophlebitis of the left lower extremity three weeks post partum. She was given a total of 1,500 mg. of heparin in five injections over a period of ten days. At the end of this time local symptoms had subsided and measurements of the lower extremities, which initially showed decided disproportion, were now equal. She was discharged on the fifteenth hospital day.

Of interest in this case was the rapid resolution of the thrombotic process in the left lower extremity. With the customary conservative management it can be stated with little fear of contradiction that the patient, barring complications, would have been bedridden for from four to six weeks with a protracted massive residual edema. As in this instance, it is possible to render these patients ambulatory without appreciable edema in two weeks with the use of subcutaneous heparin.

Case 9.—*Thrombophlebitis, postinfectious, successfully treated with subcutaneous heparin.*[42]

A. G., a white youth aged 17, developed enormous swelling of the entire left lower extremity and abdomen, with tenderness and pain over the iliofemoral system of veins, two weeks following recovery from measles. Subcutaneous heparin therapy was started on the fourth day after the onset of the thrombophlebitis and continued for twenty-one days. This required ten deposits totaling 4,000 mg. of heparin. Measurements of the extremities portray the improvement (table 3).

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[38] Courtesy of Dr. A. J. Antenucci, Roosevelt Hospital, New York.

[39] Courtesy of Dr. G. A. Fowler, St. Luke's Hospital, New York.

[40] Courtesy of Drs. A. J. Geiger and J. H. Grossman, New Haven Hospital, New Haven, Conn.

[41] Courtesy of Dr. Abraham Wallerstein, Beth Moses Hospital, Brooklyn.

[42] Courtesy of Dr. H. R. Epstein, Jewish Hospital of Brooklyn.

This patient was discharged with very little residual edema. A remarkable feature of the case was the rapid response to therapy when consideration is given to the massive thrombotic involvement of the lower extremity.

CASE 10.—*Post-traumatic migratory thrombophlebitis with repeated episodes of pulmonary embolization successfully treated with subcutaneous heparin.*[43]

B. G., a white man aged 50, was admitted to the Jewish Hospital of Brooklyn because of thrombophlebitis of the right lower extremity with onset two and one-half weeks following trauma to the leg. Bed rest was instituted, but there were repeated episodes of pulmonary embolus. Approximately one month after hospitalization there was a sudden attack of pain in the left calf associated with tenderness, swelling and a positive Homan's sign. The diagnosis of left calf vein thrombophlebitis was made. It was decided at this time to give subcutaneous heparin, since expectant treatment had been a failure. The patient was given 1,800 mg. of heparin over a period of twenty-one days in seven deposits. He was discharged from the hospital clinically well.

This case represents an intractable, progressive variety of thrombophlebitis following trauma, with episodes of pulmonary embolus. Conservative management was thoroughly unsatisfactory, since it prevented neither embolization nor migration of the clot. The response to subcutaneous heparin was rapid and apparently permanent.

CASE 11.—*Recurrent migratory phlebitis successfully treated with subcutaneous heparin; no recurrence in two years.*[44]

N. S. R., a white man aged 48, a physician, had had attacks of migratory phlebitis over the past eighteen years. The attacks recurred every one or two years. In 1942 he had a right saphenous vein ligation performed. Two weeks prior to admission to the Doctors Hospital, New York, on Oct. 21, 1943, he had a recurrence of phlebitis involving the veins of the median aspect of the left leg. He was given a total of 1,700 mg. of heparin by the subcutaneous route in five injections over a period of fifteen days. He was discharged asymptomatic and has remained well to date.

This case is of interest because the patient, a physician, had been treated in the past by all known methods. His response to subcutaneous heparin was prompt and apparently lasting. Similar cases treated subsequently have consistently shown the same rapid improvement.

COMMENT

It is evident from a critical review of the cases (table 2) that a comprehensive trial of subcutaneous heparin in the Pitkin menstruum has been carried out with good results. While other expedients, such as sulfonamides and penicillin, may be used in conjunction with it, heparin alone in clinically established thrombophlebitis irrespective of etiology is attended with consistent beneficial, if not dramatic, results. These include diminution of temperature, pain and swelling, which often become manifest within a few hours after initiation of therapy. This improvement is predicated on the limitation in the progress of the formed thrombus, while the original inflammation expends itself and the thrombus either resolves or becomes organized. Since there is no further actual propagation of thrombus, there is a rapid and well defined diminution in vasospasm. In all cases morbidity is lessened and convalescence accelerated. It is felt that prolonged, deforming and incapacitating edemas are further prevented in these patients by blocking the deposition of fibrin in the perivenous lymphatics. In unsuccessful cases of vein ligation followed by pulmonary embolization in which the subcutaneous heparin therapy has been effective, the preparation has also aided materially in diminishing the subsequent lower extremity edema.

Failures have been due to an insufficient knowledge of the behavior of thromboembolic disease either during or immediately after heparin therapy. These failures occurred early in our experience, and the lessons learned have contributed materially to the present success of the method. In uncomplicated phlebothrombosis, heparinization need be continued only for ten to fourteen days, while cases complicated by pulmonary infarction, either single or multiple, require three to four weeks of continuous heparinization. The full heparin effect must be present when the patient is first allowed out of bed. These criteria are based on an expanded clinical experience.

We are aware of the fact that the surgical approach to the problem of thromboembolism aims at the disruption of continuity of the vascular stream between the most proximal tip of the clot and the cardiopulmonary area. We also know that the bulk of evidence suggests the lack of influence of heparin on preformed clot. Nevertheless, in our clinical experience we have had no instance of pulmonary embolus in the presence of adequate heparinization by the subcutaneous method.

Experiments are now in progress to determine the mutations of intravascular pathologic changes and the fate of the clot following subcutaneous heparin in order to correlate the morbid process, dosage schedule, span of treatment and other essential aspects of the therapeutic program.

After the institution of heparin therapy the liberal use of papaverine is recommended, ½ to 1 grain (0.032 to 0.06 Gm.) every four hours intramuscularly or even intravenously and, later, maintenance dosages by mouth. Smoking is strictly prohibited. Paravertebral block, although used extensively in arterial occlusions, is not used by us in thrombophlebitis as a routine measure, since we have found that venous spasm disappears promptly following administration of subcutaneous heparin.

Although truly comparative statistics of subcutaneous heparin and proximal vein ligation are not available, our roster of cases includes failures after vein ligation which were brought to a successful termination by heparin. As has been described earlier in this paper, the general systemic anticoagulant effect of heparin seems to us to be a more rational therapeutic weapon than local vein ligation, especially when the precipitating cause of thrombosis is not yet known and the initiating site of thrombosis can be ascertained in many cases only by vague and indeterminate clinical signs. The patient with phlebothrombosis is in a potentially precarious state in which additional manipulative and operative measures may induce embolization. The ready availability of immediate adequate and rational conservative treatment without moving the patient has caused vein ligation to be supplanted by subcutaneous heparin therapy in our clinic.

SUMMARY AND CONCLUSIONS

The treatment of venous thromboembolic disease with subcutaneous heparin in the Pitkin menstruum was attended with lessened morbidity, prompt and rapid clinical improvement, and little or no residual edema.

Treatment failures with other methods have subsequently ended in recovery following the routine administration of heparin in the Pitkin menstruum.

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[43] Courtesy of Dr. Maxwell Grossbard, Jewish Hospital, Brooklyn.

[44] Courtesy of Dr. H. T. Hyman.

As a result of observations of its clinical deportment in 125 consecutive cases of thrombophlebitis and/or phlebothrombosis, the subcutaneous administration of heparin in the Pitkin menstruum is recommended as a safe, simple, practical and effective method for the conservative treatment of venous thromboembolic disease.

STREPTOMYCIN TREATMENT OF TULAREMIA

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Cincinnati

Since a published report,[1] together with unpublished work by ourselves and our associates, demonstrated that streptomycin exerted both bacteriostatic and bactericidal effects on Bacterium tularense in low concentrations in vitro, as well as definite curative properties for the experimental disease in rodents, this study was undertaken to determine the effectiveness of streptomycin therapy in human tularemia.

Seven patients were treated. Each had been infected by handling wild rabbits. All presented symptoms typical clinically of tularemia, and each developed specific serum agglutinins to 1:320 or higher. The causative agent was cultivated after mouse inoculation of primary lesion exudate from the first, third, fourth and fifth patients. The days of disease on which streptomycin therapy was instituted were the eighth, twenty-third, third, seventeenth, twentieth, fiftieth and one hundred and third respectively.

EVIDENCES OF MODIFICATION OF THE NATURAL COURSE OF DISEASE

The best objective criteria whereby changes from the usual course of disease may be detected are the number of days of temperature above 98.6 F., the duration of buboes and the number of bedridden days. Usually less useful for small groups are the durations of disease and of disability, and the number of days required for healing of ulcerated primary lesions. In the present series, however, the duration of primary lesions became important. Although the number of patients is too small for numerical comparisons, it is well to remember that the disease usually causes thirty-one days of fever, thirty-one days in bed, a duration of disease of four months characterized by buboes for 3.5 months, disability for 3.5 months, and a healing time for primary lesions of thirty-nine days.

PREPARATION OF STREPTOMYCIN

All streptomycin except a portion of that given to the seventh patient was from a single lot containing 150 units per milligram. Since this early lot had not been tested for sterility or for pyrogens, we dissolved accurately weighed amounts in sterile salt solution so that each 4 cc. dose would contain the desired unitage, adjusted the p_H to approximately 7.0, filtered the solution through Berkefeld N filters, and bottled it aseptically in slightly more than 32 cc. amounts, one bottle for each day of treatment.

STREPTOMYCIN ADMINISTRATION

The most frequently used dosage, 30,000 units every three hours intramuscularly for five days, was tentative and wholly arbitrary, based on available in vitro and in vivo experiences and on the sensitivity of Bacterium tularense in relation to that of other disease agents for which some knowledge of clinical dosage was at hand.

TOXICITY CONTROL STUDIES

In anticipation of possible toxic effects of streptomycin, fluid intake and urinary output were measured daily, urinalyses for albumin, casts and red blood cells were made daily or more frequently, blood nitrogen determinations were made every other day during drug administration, and estimations of hemoglobin, total red blood cells and white blood cells and differential leukocyte counts were made irregularly. Daily observations were made for possible dermal and psychic changes. This was routine for all patients. Since no evidence for drug toxicity was noted, reference to these observations will be omitted hereafter.

REPORT OF CASES

Case 1.—*History.*—A. C., a man aged 33, was exposed on Nov. 12 and 18, 1944. Onset occurred on Nov. 23, 1944, with chills, fever, sweats, arthralgias, myalgias, anorexia, headache, mental dulness, photophobia and a painful swelling at the edge of the right thumb nail followed in two days by a tender swelling in the right axilla.

The patient was admitted to the hospital on the fourth day of disease with persistence of initial complaints and symptoms. The significant physical findings were a temperature of 101.7 F., a nonulcerated papular paronychial lesion on the right thumb and a painful, tender bubo measuring 1.5 by 1 cm. in the right axilla. Pneumonia was not present by physical signs or by x-ray.

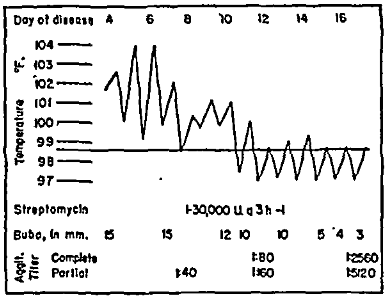

Fig. 1 (case 1).—Effect of streptomycin on the daily maximal and minimal temperatures and on the diameter of the accessible axillary bubo. Although the last recorded agglutinin titer is unusually high for the seventeenth day of disease, it is within the normal range and probably unrelated to the therapy.

An intradermal test with 0.05 cc. of a formaldehyde killed bacterial suspension on the fourth day of disease, the test dose containing about 6,000 cells, gave a positive reaction forty-eight hours later. Serum agglutinin titers are shown in figure 1.

Therapy.—Streptomycin administration was begun on the eighth day of disease, 30,000 units being given every three hours intramuscularly for five days, a total of 1.2 million units.

Course During and After Therapy.—At the end of the first day the patient looked and felt improved; headache was almost gone, the bubo and primary lesion were less painful, bodily aches and pains were ameliorated; he was not sweating but was interested to know when he could get up. By the second day he had had the first good night's sleep, with but one sweat, and awoke with a clear head. The bubo was almost painless, scarcely tender to pressure and distinctly smaller. Its previously smooth, tense surface was soft and rugose. The positive skin test reaction remained unchanged. By the third day the bubo was painless and still shrinking. The entire area of the primary lesion was wrinkled. On this day, the eleventh of disease, he stated that he had "no complaints whatever." During the next day he was afebrile. The bubo continued to dwindle, and the incised papule showed primary healing without ulceration. Recovery ensued rapidly without interruptions. The primary lesion healed without ulceration, and the bubo shrank to barely palpable size. He regained strength and vigor, was

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The streptomycin hydrochloride was supplied by Merck & Co., Inc., Rahway, N. J.

From the Departments of Bacteriology and of Medicine, University of Cincinnati College of Medicine, and the Cincinnati General Hospital.

Dr. W. A. Altemeier furnished the opportunity to collaborate in the treatment of case 2, Drs. Altemeier and A. F. Rewwer of case 4, Dr. D. A. Tucker Jr. of case 6 and Drs. R. L. Crawford and C. G. Reid of case 7.

[1] Heilman, F. R.: Streptomycin in the Treatment of Experimental Tularemia, Proc. Staff Meet., Mayo Clin. **19**: 553 (Nov. 29) 1944.

out of bed on the sixteenth day, the eighth after onset of therapy, and left the hospital on the eighteenth day of disease, afebrile and asymptomatic except for slight weakness. He returned to half time work in ten days. After two weeks he resumed full time work. During the subsequent eleven months he has remained well.

The patient had thirteen days of fever, fifteen days in bed and a palpable bubo for sixteen days. His primary lesion, although incised, had healed within seventeen days without ulcerating. He was totally disabled for twenty-eight days, with partial disability extending to 1.4 months from onset.

Case 2.—*History.*—M. E. T., a man aged 40, was exposed on Nov. 10, 11 and 12, 1944. *Onset occurred on November 15 with general malaise, anorexia and a "thorn" in the right thumb.* Three days later he had *severe chills, high fever,* drenching sweats, a splitting headache, lethargy, mental depression, *profound anorexia,* cough, nausea and vomiting. This condition persisted unabated for *fourteen days.* Since then he has had no chills but persisting low fever, cough, daily sweats, *dull headache,* lethargy and profound weakness with a *17 pound (7.7 Kg.)* loss in weight.

The patient was admitted with these residual complaints on the *twenty-second day of disease. Examination* revealed a temperature *of 99 F.,* evidence of recent loss of weight, a papulovesicular exanthem over the back of the neck and the shoulders, a painful *granulating ulcerated primary lesion* about 9 mm. in diameter on the middle phalanx of the right first digit and two tender dermal lymphangitic *nodules on the mesial surface of the right arm* with reddened *overlying* skin, the larger measuring 1 by 0.5 *cm.,* the smaller 0.4 *cm. Pneumonia* was *not present by physical* signs or by x-ray.

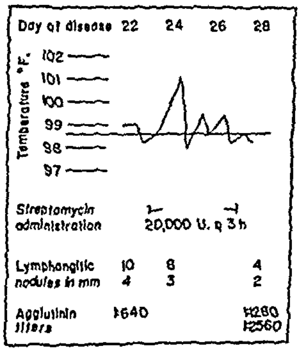

Fig. 2 (case 2).—Effect of streptomycin *on* the temperature curve and on the diameters of the dermal lymphangitic nodules. *Fluctuations in fever curves to this extent are not uncommon at this stage of disease. Distinction between spontaneous fever and a possible pyrogenic effect of streptomycin on the twenty-fourth day could not be made.*

Therapy.—Streptomycin administration was started *on the twenty-third* day of disease, *20,000 units being given every* three hours intramuscularly for four days, a total of 640,000 units.

Course During and After Therapy.—Little change was noted during the first day other than loss of pain in the primary lesion. During the second day *appetite returned, and the patient* ate with relish for the first time since the onset of illness. The exanthem disappeared. The dermal nodules became smaller and less tender, and the overlying skin was bluish. *By the* third day he was hungry and ate well. *Headache, lethargy* and depression disappeared. The *nodules continued to recede.* A day later he was totally asymptomatic, *felt vigorous* and said he could go to work. He was discharged the next day, *feeling competent to work,* with barely palpable dermal nodules without coloration and a small epithelizing ulcer.

On the eighty-eighth day after discharge he returned with a large *right* subpectoral abscess. Incision yielded about 500 cc. of thick, odorless, greenish gray pus. Cultures and animal inoculations were unproductive.

This patient had weathered *the* severe initial phase before treatment was administered. The only valid objective evidence of therapeutic effect was the rapid recession of *the* lymphangitic nodules. His subjective improvement progressed more rapidly than is usual at this stage of disease, and we believe his convalescence was accelerated.

Case 3.—*History.*—*C.* S., a woman aged 53, was exposed on Dec. 15, *1944.* Onset occurred on December 18 with chills, fever, generalized aching, headache, nausea, vomiting, pain in the right elbow and in the *right axilla* and painful papular sores on the right second and *right fifth digits.*

The patient was admitted *on the second* day of disease with a temperature of 103.3 *F.,* which rose and varied between 104.9 *and 105.1 F.* for several hours; she was delirious, disoriented and in peripheral shock, with *many blood pressure* readings at or *below* a *systolic* of *80* mm. and a *diastolic of* 55 mm. of mercury. *After slow recovery of pressures toward normal, nausea and vomiting persisted,* and she continued *to be profoundly weak and highly febrile, and she lapsed frequently* into a semidelirious state until treatment was instituted. *Additional significant physical findings of this* short, slightly obese woman were exquisitely painful areas in the right axilla and the inner right elbow that prevented palpation of buboes, a 4 mm. paronychial papule on the right second digit and a smaller one on the dorsal surface of the middle phalanx of the right fifth digit (fig. 3). Pneumonia was not present. X-ray examination of the lung showed only increased bronchial shadows.

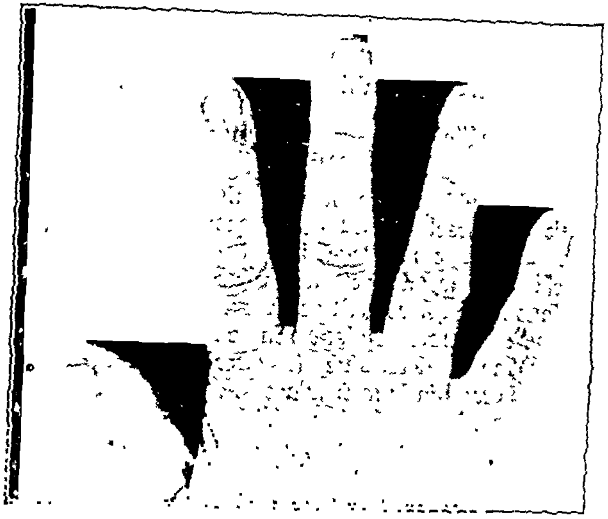

Fig. 3 (case 3).—Appearance of the primary lesions on the twelfth day *of disease,* one day *before the scabs fell off leaving almost* no residual traces of injury. The site of the small incision into the *papule* on the index finger, that healed by primary intention, is visible. Although a *relatively trivial event in recovery,* the healing of *primary lesions without* ulceration is significant of the efficacy and mode of action of streptomycin.

The results of serum agglutination tests are shown in figure 4. *With the hope of demonstrating a bacteremia,* 1.6 cc. *of her blood was spread on the surfaces* of nine blood glucose cystine agar *plates and several slants,* and *0.75* cc. was injected *intraperitoneally into each of 2 mice,* but all mediums remained *sterile and both mice survived.*

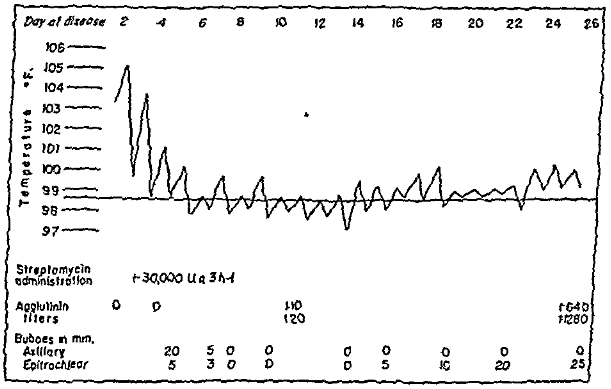

Fig. 4 (case 3).—*Dramatic fall in temperature and recession of buboes in a desperately ill patient treated on the third day of disease* Reenlargement *of a node* and *recurrence of low fever may indicate inadequate* dosage.

Therapy.—Streptomycin treatment was instituted on the third day of disease, 30,000 units being given intramuscularly every three hours for a period of five days, a total of 1.2 million units.

Course During and After Therapy.—After sixteen hours she was mentally clear, the temperature had fallen more than 2 degrees, the severe malaise was considerably ameliorated, and there was less pain in the axilla and at the elbow but the nodes were still not palpable. By the second day the temperature had fallen to a maximum of 100.1 F. Regional pain was so slight that buboes were readily palpable. A node measuring 2 by 1.5 cm. was felt in the right axilla, and one about 4 mm. in diameter was found at the right epitrochlear region. Neither papule showed an increase in size, and neither appeared to be ulcerating. The patient was afebrile throughout the third day of treatment. Nausea and vomiting had disappeared; headache and bodily aches and pains were minimal. On the fourth day the primary lesions measured 3 by 2 mm. and 2 by 1 mm. respectively and showed evidence of healing at the peripheries without ulceration of the centers. The axillary bubo measured only 0.5 cm., and the epitrochlear node was impalpable. The patient asked for more food and stated that she had no complaints except profound fatigue. On the following day the axillary node was impalpable. There was no fever, and subjective improvement continued. Treatment was discontinued. She was up in a chair on the fourteenth day of disease, with strength and vigor returning rapidly, and with no sweating during the previous four nights. Both papules had healed without ulceration.

Plans to leave on the seventeenth day were postponed because of the recurrence of low fever, pain at the right elbow and reenlargement of the epitrochlear node. During the next nine days it continued to enlarge. The overlying skin was red, and the node was tender and slightly painful, but suppuration did not occur. After discharge on the twenty-sixth day of disease there was persistence of low fever until the thirty-seventh day. Since then she has remained afebrile, and the bubo gradually receded. Examination on the forty-ninth day showed a painless, nontender node, normal in size and consistency, in a patient who had completely recovered her health and weight loss. She resumed work two days later.

The dramatic fall in temperature, prompt amelioration of severe general symptoms with rapid recession of buboes and failure of primary lesions to ulcerate even though one had been incised are attributable only to streptomycin therapy. Permanent changes of these kinds do not occur spontaneously during the severe initial phase. The fall in temperature might have coincided with a spontaneous febrile remission, which often occurs at this time, but the failure of fever to rise subsequently to or near the initial level clearly removes it from this category. Fever was present for thirty-two days, but except for the first five days it was never above 100.2 F. The axillary bubo was palpable for eight days, the epitrochlear for 1.6 months. There were fourteen bedridden days, and a disability period of 1.7 months. Obese persons at this age, with severe initial symptoms including delirium and disorientation, are notably poor risks with bad prognoses. So far as we know there is no record of a primary lesion that failed to ulcerate in a surviving patient except for rare instances among heavily vaccinated laboratory workers.

CASE 4.—*History.*—L. G., a woman aged 36, diabetic for several years, was exposed on Nov. 23, 1944. Onset occurred on November 27 with fever, chills, cough, sore throat, weakness, sweats, bodily aches and pains, headache, sore on the tip of the right fourth digit and pain in the right axilla. The temperature ranged from 102 to 103 F. She became dyspneic and profoundly prostrated and was admitted on the sixth day of disease for better control of the infection and the diabetes.

The patient was well developed, pale, febrile, severely ill and dyspneic, with extensive herpes labialis. Fine rales were audible over both lung bases. There was an indolent ulcer on the right fourth digit about 5 mm. in diameter, visible and palpable lymphangitis of the forearm, and a tender, painful axillary bubo. Lung x-rays showed "exaggerated markings to both bases, indicating bronchial infection" but no pneumonia. The blood sugar was 237 mg. per hundred cubic centimeters.

The nature of the infection was not suspected at first. After sulfadiazine administration, 2 Gm. at once and 1 Gm. every four hours for four days, she was not improved, and the temperature was 1 degree higher. It continued to rise to 102 to 104 F. daily. The probability of tularemic infection was suggested on the fourteenth day of disease.

Therapy.—Streptomycin administration was started on the seventeenth day of disease, 30,000 units being given intramuscularly every three hours for five days, a total of 1.2 million units.

Course During and After Therapy.—Little improvement was noted during the first day, but the patient stated that she felt better. By the second day subjective and objective favorable changes were prominent. Headache and mental dulness had disappeared; she felt better, stronger, less prostrated and cheerful. Cough had disappeared, and the throat was less sore. Within two days the bubo had diminished from 3.5 by 2 cm. to 2.5 by 1.5 cm., and the primary lesion had become painless. She was afebrile throughout the third day of treatment and announced that she felt "perfectly well." Improvement continued during the fourth day, associated with beginning epithelization of the ulcer. She continued to gain in weight and vigor and it was difficult to keep her hospitalized. The bubo receded gradually. Fever disappeared on the forty-second day of disease. During the next six weeks the bubo receded to a diameter of about 5 mm., at which size it still remains, painless and not tender.

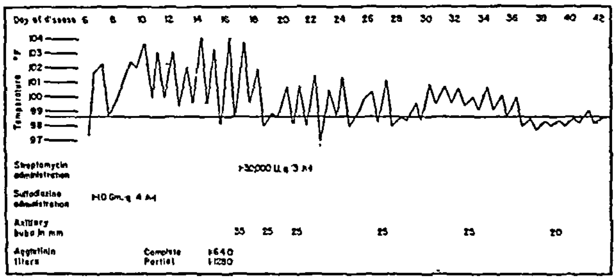

Fig. 5 (case 4).—After the twenty-second day of disease temperature elevations occurred for only three to five hours during each night. The patient was unaware of fever and was eager to go home. The curve also shows comparative effects of sulfadiazine and streptomycin.

Although the rapid transition from a state of illness to one of relative comfort within three days could scarcely have been a spontaneous change at this stage of disease in a patient with a bubo of this size, the concomitant effect on the temperature was less permanent. The maximal-minimal temperature readings shown in figure 4 do not reflect the progressive clinical improvement that occurred. The hospital chart showed that the temperature elevations that averaged about 101 F. for two weeks after treatment was given occurred chiefly during the nights, and for only three to five hours. There was little or no fever during the remainder of the days. The reasons for this unusual temperature curve are not entirely clear. There were thirty-five febrile days and twenty-eight days spent in bed. Palpable adenopathy persisted for 2.8 months.

CASE 5.—*History.*—M. C., a Negro woman aged 40, could not give a reliable chronologic account of exposure or of onset of illness. It is presumed that exposure was on Dec. 13, 1944 and that onset occurred on or about December 17 with chills, fever, sweats, nausea, vomiting, anorexia, severe malaise, headache, mental dulness, a sore on the lateral aspect of the tip of the felt fourth digit and pain in the left arm and in the left axilla. She remained at home for more than two weeks and was admitted on or about the seventeenth day of disease with the complaints unchanged, with a diagnosis of felon of the finger. The significant findings were temperature of 102.1 F., a ragged, necrotic ulcerated lesion on the terminal phalanx of the ring finger, a painful, tender, left axillary bubo that measured 5.5 by 4.5 cm., and normal lungs both by physical signs and by x-ray.

Therapy.—On the twentieth day of disease streptomycin administration was started, 30,000 units being given intramuscularly every three hours for five days, then 15,000 units intramuscularly every four hours for two days, a total of 1.38 million units.

Course During and After Therapy.—By the end of the first day the bubo had diminished to 4 by 3 cm. It was less painful and less tender. There was a decided amelioration of all symptoms. Before the end of the second day she was afebrile and remained so thereafter. Chills and sweats ceased abruptly, not to return. Disappearance of all general symptoms occurred before treatment was discontinued. By the fourth day the axillary bubo was resolvable into two discrete nodes. The smaller one receded rapidly to a 6 mm. diameter within a week; the larger was still 2 by 2 cm. when she left the hospital on the thirtieth day of disease. The latter node remained stationary for three weeks; then it enlarged, liquefied rapidly and ruptured spontaneously. The sinus tract healed in two weeks.

The change from a state of wretchedness to one of almost complete comfort was dramatically short, with abrupt and permanent disappearance of fever. Many patients have fever of the same or shorter duration, but commonly it does not disappear so abruptly, and especially in the presence of a liquefying bubo. There were twenty-two febrile days, twenty-six days in bed. The duration of adenopathy was 2.2 months.

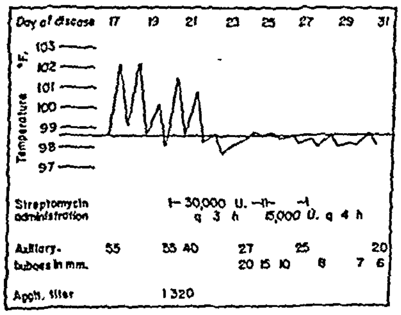

Fig. 6 (case 5).—Note the abrupt termination of fever before the end of the second day of therapy. Although an important change, it is less significant in relation to stage of disease than the fall shown in figure 4. The additional streptomycin over the usual dosage was given with the unrealized hope that it might prevent ultimate liquefaction of the larger node.

Case 6.—*History.*—M. P., a farmer aged 60, experienced multiple exposures during November and early December 1944. Onset occurred on December 7 with a severe chill, high fever and sweat; he ached all over. Severe symptoms lasted for four days, after which they continued in milder form associated with moderate to low fever. On the third day of disease primary lesions appeared on the left fifth digit, the right thumb and the dorsum of the right hand. Painful swellings appeared simultaneously in each axilla. Until admission the clinical course was characterized by malaise, weakness, loss of weight, persistent fever, multiple ulcerations on the hands and fingers, and progressively enlarging, painful buboes. Two dermal lymphangitic nodules developed on the right forearm.

The patient was admitted on the thirty-sixth day of disease with a temperature of 101.6 F. Significant findings were evident loss of weight, moderate secondary anemia, a painful swelling in the left axilla measuring 4 by 4 cm., an 8 mm. ulcer on the tip of the left fifth digit, an ulcerated paronychial lesion on the right thumb, a 14 mm. ulcer on the dorsum of the right hand and two regressing lymphangitic nodules on the dorsum of the right forearm, each about 3 mm. in diameter.

At the time streptomycin was instituted, the left axillary bubo was a warm, tender, painful mass at least 5 by 6 cm. in diameter, apparently composed of two nodes, each fluctuant and almost completely liquefied.

Serum obtained on the thirty-eighth day of disease agglutinated both Bacterium tularense and Brucella abortus completely in 1:1,280 dilution. Repetition on the sixty-first day showed both titers unchanged and a Proteus OX_{19} titer of 1:20, partial in 1:40 dilution. Hemoglobin varied between 10 and 10.5 Gm. (64 to 67 per cent Sahli), and red blood cells varied between 3.28 and 3.41 millions per cubic millimeter.

Therapy.—On the day after admission and for three days thereafter the patient received by vein 7.5 cc. of commercially prepared antitularense horse serum, a total of 30 cc. in ninety-six hours.

Streptomycin therapy was instituted on the fiftieth day of disease, 23,500 units being given intramuscularly every three hours for five days, a total of 940,000 units.

On the following day incision of the axillary abscess yielded about 40 cc. of pus. Six days later an incision was made to evacuate another abscess deeper in the axilla.

Course During and After Therapy.—During the ten days subsequent to serum administration, no significant subjective or objective changes were noted. By the end of the first day of streptomycin therapy there was slight but definite amelioration of all subjective symptoms but no other changes of note. After evacuation of the axillary abscesses there was rapid, progressive improvement that continued uneventfully to complete recovery. The uninformative temperature chart is omitted.

Since the chief cause of persisting illness was the suppurative adenitis, it is probable that incision and drainage of abscesses contributed most toward the recovery, even though definite subjective improvement had occurred before the first incision was made. Here again, as in case 2, little could be expected beyond an acceleration of convalescence, but it seemed that that little was achieved.

Case 7.—*History.*—J. M., a woman aged 26, was exposed on Nov. 24, 1944. Onset occurred on November 29 with chills, fever, sweats, cough, severe malaise and a painful sore beneath the edge of the nail of the left third digit. Small tender buboes appeared in the left epitrochlear and axillary regions on the second day. Symptoms and signs of pleurisy over the right lower lobe developed on the seventh day followed by clinical and x-ray evidences of a progressively developing pneumonia in that lobe. By the fourteenth day the lobe was consolidated. Remittent fever continued to reach daily levels of 103 F. The buboes measured 2 cm. and 2 by 3 cm.

Serum taken on the twelfth day agglutinated Bact. tularense in 1:80 dilution. Two weeks later the titer was complete in 1:1,280 dilution. An intradermal test with bacterial antigen gave a positive reaction on the eighteenth day.

Course After Treatment with Hyperimmune Goat Serum.—On the eighteenth day of disease she received by vein 60 cc. of hyperimmune goat antitularense serum prepared by inoculating animals with living virulent organisms. During the subsequent week the temperature fell gradually to normal. Early convalescence, though slow, progressed satisfactorily. Buboes were impalpable after the twenty-second day. Nineteen days after serum administration an x-ray showed resolution of the pneumonic area and she was permitted to go home. The summary at this stage showed that there had been twenty-five febrile days and twenty-eight days spent in bed, and an apparent duration of disease of 1.4 months.

After returning home the patient felt well except for severe headache. Continuation of low grade fever was soon noted. During the next month she experienced several distinct bouts of higher fever associated with general malaise, anorexia and loss of weight. On February 14, the seventy-eighth day after onset, continuous fever recurred, varying between 102 and 103 F. Two days later there was pain in the upper left abdominal quadrant and soon thereafter her abdomen began to swell. This continued for two weeks, at which time she was again hospitalized.

Examination showed that the patient was somewhat emaciated and dehydrated. She complained of generalized abdominal distention and pain in the upper left quadrant. A friction rub was heard over the splenic area on deep inspiration. The abdominal girth was commensurate with that of a full term pregnancy, and the cavity was obviously distended with fluid. The thorax was negative to physical examination and the lungs were clear by x-ray. Temperature maxima varied daily between 102 and 104 F.

An agglutination test showed a titer of 1:320. On repetition the titer rose gradually and became stabilized at 1:1,280. Abdominal paracentesis yielded a thick, cloudy, straw colored fluid which failed to initiate growth after cultivation in several mediums. A sample injected intraperitoneally into a guinea pig caused its death about a week later. Sections of its liver, spleen and lungs revealed numerous focal necroses which Dr. Paul Kimmelstiel considered were compatible with the lesions of rodent tularemia.

Streptomycin Therapy.—On the one hundred and third day of disease streptomycin therapy was instituted. The dosage was 50,000 units intramuscularly every three hours for the first two days, followed by 30,000 units every three hours for the four succeeding days, a total of 1.76 million units.

Course During and After Streptomycin Administration.—After the fourth injection the patient was intensely nauseated, vomited and became extremely drowsy. Nausea and vomiting continued, and somnolence became so extreme that she could scarcely be aroused to take fluids or food. The temperature was in the 100 to 102 F. range, and the abdominal fluid level was lower. In the absence of any other signs of possible drug toxicity, treatment was continued without interruption. Nausea, drowsiness and a widely fluctuating temperature continued until the fourth day. Then the temperature began to fall, nausea became less, and the splenic friction rub, which had been heard rather consistently, disappeared not to return. The temperature reached normal on the sixth day and, except for one rise on the eighth day, remained normal thereafter.

Some fluid was still present in the abdominal cavity at the time the temperature reached the normal level. Another sample was obtained and inoculated intraperitoneally into a guinea pig. This animal survived.

Subsequent to the one hundred and tenth day of disease, the eighth day after onest of therapy, the patient was afebrile. She was hospitalized for an additional two weeks, during which her appetite returned, the lost weight was regained and the abdomen became perfectly flat without evidence of fluid. When seen three weeks later she appeared to be in perfect health and had resumed her customary activities.

This patient presented several unusual features. Subsequent to a fairly satisfactory recovery induced by hyperimmune serum therapy there occurred a relapse of serious proportions despite the fact that the most serious early lesion, the pneumonia, had resolved completely. Bactericidal properties have not been demonstrated for tularemia immune serums. Since the beneficial results of serum therapy are apparently due to a bacteriostatic effect, the patient probably experienced a sequence of events somewhat as follows: It is clear that the small lesions established early in the accessible lymph nodes, and the extensive lesion in the lung, were prevented from progressing by bacteriostatic action long enough to permit resolution by the usual processes of repair. Bacteria in some of the lesions established early in the spleen escaped the intensity or duration of bacteriostasis necessary to permit completion of a similar process, and with gradual release from inadequate local bacteriostasis there occurred progressively splenitis, perisplenitis, and peritonitis with infected exudate.

Since the duration of disease in all cases of tularemic peritonitis known to us has been long, ranging from ten months up to two and one-half years as reported for the case recorded by Kilbury and Fulmer,[2] in which distention due to peritoneal exudate persisted for more than three months, the rapid restoration of this patient to a completely normal state was a highly significant change. The temperature chart is unfortunately not available.

The dramatic, favorable response to streptomycin therapy was marred only by the appearance of intense nausea, vomiting and deep somnolence. Since these symptoms are frequently caused by the disease, somnolence a constant feature of its terminal phase when the density of bacteremia is demonstrably high, we regard them not as an expression of toxicity of the antibiotic but as manifestations of an acute intoxication caused by rapid absorption of bacterial products through a highly absorptive serous membrane consequent on rapid killing of numerous bacteria within a short time.

COMMENT

It is noteworthy that each of the first 6 patients experienced relief from the distressing general symptoms of headache, mental dulness, sense of prostration, arthralgias, myalgias, chills or chilly sensations and nausea before the end of the first day of therapy. This effect was a striking feature by the end of the second day, and it appeared even with very low, possibly suboptimal dosage. We infer that bacteriostasis, which must undoubtedly have occurred within the first twelve hours of therapy, is associated with failure of the bacteria to elaborate the diffusible substances that lead to the production of these symptoms. Failure of papular primary lesions to ulcerate, even after incision, seems also a result either of bacteriostasis or a regional bactericidal effect.

Streptomycin Dosage.—It is doubtless partly fortuitous that our trial dosage proved to be so effective. By hindsight we regard it as a minimal effective dosage in relation to the severity and duration of disease encountered. It is probable that we gave too little streptomycin, or for too short a period, to obtain the best possible results in several cases. We probably erred on both counts in relation to case 2, in which a doubtfully palpable lymph node was situated deep in the pectoral fold. The subpectoral abscess was caused by extension from this suppurating node, and it is possible that had more streptomycin been given over a longer period liquefaction might have been prevented. The same criticism might apply to the reenlargement of the epitrochlear node in case 3 and to the persistence of fever and the bubo in case 4. Although neither bubo suppurated, convalescence might have been materially shortened had our dosage been, for example, 50 or 60 thousand units every three hours for the first four days, followed by 30 to 50 thousand units every three hours for two or three additional days.

It is probable that administration by continuous subcutaneous drip, which seems to be tolerated better than a continuous intravenous drip, would have been more effective than intermittent intramuscular administration in securing high initial blood and tissue concentrations, the most important factors for successful therapy with all bacteriostatic and bactericidal agents.

We were unable to treat a patient with tularemic pneumonia, the commonest serious visceral lesion. We would expect a dosage of about ½ million units daily by continuous subcutaneous drip to induce extremely favorable results. If clinical evidences of septicemia were present—nonremittent high fever, continuous delirium and enlarging liver or spleen—the dosage must be larger, possibly not less than 2 to 4 million units per day. In view of the numerous bacteria within such patients, and with the experience of patient 7 in mind, we think that those who may guide the management of septicemic patients should anticipate symptoms of profound intoxication and be prepared to cope with them.

We were unable to determine streptomycin concentrations in blood or serum at the time these patients were treated. From later studies we infer that administration of 30,000 units every three hours maintained concentrations between 2 and 4 units per cubic centimeter of serum during the period of administration.

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[2] Kilbury, M. J., and Fulmer, S. C.: Tularemic Peritonitis: Report of Case Observed for Four Years, South. M. J. 24:856 (Oct.) 1931.

Relapse.—The frequency of relapse in tularemia is unknown. From available information we estimate it to be about 1 in each 700 to 800 cases. In this connection it is noted that the relapse following serum therapy in the seventh patient was the first to occur among 900 patients so treated. None occurred in the streptomycin treated patients up to eleven months after recoveries.

Comparison with Serum Therapy.—Comparative estimates of the effects of these two therapeutic agents were unavoidable. With due regard for the small size of the streptomycin series, one feature was outstanding: the uniformity of the clinical responses in character, degree, continuity and time of appearance. Although we have records of serum treated patients that compare favorably with any recorded here, we could not match them by selecting any seven case records at random. The responses to serum therapy have always shown a wide range of variability in character, degree, continuity of effect and time of appearance. This has been attributed chiefly to variability in the efficiency of individual defense mechanisms as they were aided by a bacteriostatic agent. The administration of a bactericidal agent that acts directly on bacteria and independently of the variable, individual defense mechanism possibly accounts for the observed uniformity of responses to streptomycin.

Effect of Therapy on Residual Immunity.—Recovery from tularemia confers an unusual degree of protection against external reinfection, often of lifelong duration. This resistance is associated with persistence of serum agglutinins, a fact which in itself implies continuous antibody formation. Although final proof by recovery of the causative agent is still lacking, many surmise that both the lasting protection and the persisting serum antibodies are caused by retention of living bacteria within the recovered patient, held in innocuous bacteriostatic equilibrium. The late recrudescences that occasionally occur, often subsequent to unusual physical effort or exposure but sometimes without traceable antecedent change, are attributable to disturbance of this equilibrium with consequent release of the long retained bacteria from bacteriostatic control. Effective treatment with either arsenicals or penicillin during the early primary stage of syphilis kills all treponemes and leaves patients susceptible thereafter to external reinfection. Must we anticipate a similar situation after early streptomycin therapy of tularemia? There is clinical evidence that treponemes are disseminated relatively slowly from the site of the primary lesion, whereas Bact. tularense spreads to regional lymph nodes very rapidly, apparently even during the incubation period. Hence before streptomycin therapy could be initiated, even if on the first day of disease, the probability is great that dissemination had occurred and that areas of potential antigenic stimulus were already established. Only in the event of a laboratory infection in which suppressive or prophylactic streptomycin therapy could be started immediately after infection would the therapy be apt to prevent antibody formation and to leave the patient susceptible to reinfection.

Maximal and Residual Titers

The maximal complete agglutination serum titers observed during the acute phase of disease compared with those obtained eight months later are shown in relation to the days of disease on which streptomycin therapy was instituted.

Day of Disease on Which Streptomycin Therapy Was Instituted	Maximal Titer During Acute Phase	Residual Titer Eight Months After Onset of Disease
3	1:640	1:1,280
8	1:2,560	1:1,280
17	1:640	1:640

If persisting serum agglutinins are an index of maintained resistance they should indicate the immune status of patients who were treated with streptomycin. During the eighth month after onset serum was obtained from the 3 patients who received streptomycin therapy earliest in the course of disease. The highest serum dilutions that showed complete agglutination were compared with the same titers obtained during the acute phases. On the basis of this evidence there seems little likelihood that early streptomycin therapy has jeopardized the immune status of any of these patients.

DICUMAROL IN ACUTE CORONARY THROMBOSIS

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The increasing incidence of coronary thrombosis has been dwelt on frequently in recent medical literature and indeed has at times reached the lay press. The ever present challenge of this disease to the medical therapist might best be brought home to the physician himself when he realizes that approximately one out of five members of his own profession is stricken fatally with coronary thrombosis and occlusion. Thus, recent statistics show that in 1944 this disease accounted for 18 per cent of the deaths of physicians in this country.[1]

Much has been written on the pathogenesis, diagnosis and therapy of coronary thrombosis. Certainly in more recent years the clinician has had a better knowledge of the pathogenesis. His alertness and ability today to make earlier diagnosis has automatically given more effective treatment. Treatment itself is unfortunately limited by lack of specific therapy. The patient is put to bed, strenuous efforts are made to relieve the pain and otherwise therapy is more or less symptomatic. In addition, constant and careful watch is kept for complications. Under such a regimen approximately 80 per cent of those suffering the first attack now recover. In the remaining 20 per cent sudden death may occur without warning either as a result of ventricular fibrillation, from rupture of the softened area of the ventricle or from complete heart block. However, the greater number of cases with fatal termination are from congestive failure and embolism.

Master, Dack and Jaffe [2] noted that congestive failure caused 33 per cent of the deaths among 500 cases of coronary thrombosis and it was associated with severe shock in 16.5 per cent of additional fatal cases. Hence death in one half of the cases was due to cardiac decompensation with or without shock. In reviewing the subject of embolic phenomena Blumer [3] states that 50 per

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Mrs. Raymond C. Teubner, B.S., M.T., carried out the technical work.

Electrocardiographic evaluations were made through the courtesy of Dr. T. Conrad Wolff.

This investigation has been made possible through a grant in aid by the Abbott Laboratories, North Chicago, Ill.

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[1] Deaths of Physicians in 1944, editorial, J. A. M. A. **127:** 90 (Jan. 13) 1945.

[2] Master, A. M.; Dack, S., and Jaffe, H. L.: Age, Sex and Hypertension in Myocardial Infarction Due to Coronary Occlusion, Arch. Int. Med. **64:** 767 (Oct.) 1939.

[3] Blumer, G.: The Importance of Embolism as a Complication of Cardiac Infarction, Ann. Int. Med. **11:** 499 (Sept.) 1937.

cent of cases of myocardial infarction are accompanied by mural thrombi within the ventricles, and in approximately 14 per cent of cases clinical evidence of embolism is observed from this source. Levine [4] too has recently emphasized the importance of mural thrombi and subsequent arterial emboli. Master and his associates [2] stated that in patients under 50 the most common cause of death was arterial embolism. Falk [5] emphasized the fact that massive pulmonary embolism is responsible for a significant percentage of deaths following acute coronary occlusion but that the sources of the emboli are the veins of the pelvis or lower extremities. Such massive pulmonary embolism accounted for 6 of 60 deaths occurring in a series of 128 cases of acute coronary occlusion reported by Woods and Barnes [6] in 1941. Nay and Barnes [7] undertook the study of 100 consecutive cases of acute myocardial infarction encountered at the Mayo Clinic to establish the incidence of vascular complications during the immediate convalescent period. They found embolic or thrombotic complications in 37 of the 100 patients. In fact these complications were important contributing factors to the death of 12 patients. The vascular complications were subsequent myocardial infarction in 15, pulmonary embolism in 14, cerebral embolism or thrombosis in 8, thrombophlebitis in 7 and arterial occlusion in 4. There was a total of 48 complications in 37 patients.

In the face of such pertinent statistics regarding the frequency of thrombotic and embolic processes following coronary thrombosis the question of therapeutic prophylaxis arose. It became our purpose then to observe the effect of an anticoagulant with regard to reducing the incidence of such complications.

MATERIAL

We have critically reviewed all the cases of coronary occlusion with infarction seen in the medical services of Mercy Hospital in Baltimore during the past three years. No case is included in this paper which did not have a typical clinical history substantiated by laboratory findings and electrocardiographic tracings. Thus a few patients who probably had myocardial infarction but who died within the first few hours were excluded because they did not have adequate laboratory work or electrocardiograms to substantiate fully the clinical impression of coronary occlusion. We found 110 cases which fulfilled the necessary criteria. All received the generally accepted treatment for coronary thrombosis. Sixty patients had not received dicumarol and are used as the control group. In March 1943, for purposes of comparison, we began to administer dicumarol to a series of patients. This series has now reached a total of 50. The age and sex distribution in these two series closely approximate each other and afford a fair basis for comparison (table 2). In our control group of 60 patients the incidence of cardiac decompensation of at least moderate degree (grade 2, 3 or 4) was found to be 33 per cent. The incidence of clinical embolism in the same control series was 16 per cent. These figures for such complications are in accord with those of other investigators.[8]

RATIONALE

Since 1943 we have determined prothrombin clotting times on most of the patients who had coronary occlusion. The determinations have been done by the method of Quick,[9] using a modified thromboplastic reagent as described by Brambel.[10] Other types of thromboplastins did not yield the desired sensitivity or reproducibility. The importance of using standardized reagents has been recently emphasized.[11] Determinations were made in each instance on undiluted plasma and on 12.5 per cent plasma. Several investigators [12] have shown that slight variations of prothrombin activity can be better detected with diluted plasma. Normals had previously been established for whole plasma of 12 to 14 seconds and for diluted (12.5 per cent) plasma, 85 to 100 seconds. It was noted that 3 of every 4 cases of coronary thrombosis exhibited an increased prothrombin activity, i. e. increased clotting tendency. There were 21 patients with coronary thrombosis whose prothrombin times were within normal range or above normal. Cephalin-cholesterol flocculation tests were made in 13 of the 21 cases and 10 were positive, suggesting hepatic damage. Since there is considerable evidence to indicate that plasma prothrombin concentration is intimately related to the liver and its normal function, and where there is hepatic damage the plasma prothrombin concentration is lowered, one would expect to find increased

Table 1.—*Incidence of Clinical Embolism*

Source	Number of Cases	Number with Embolism	Outcome
Master et al.[2]	500	29	6% fatal
Woods and Barnes [6]	60	6	10% fatal
Blumer [3]	945	132	14% fatal and nonfatal
Nay and Barnes [7]	100	18	18% fatal and nonfatal
Present series	60 without dicumarol	10	16% fatal (10%), nonfatal (6%)
Present series	50 with dicumarol	1	2% nonfatal

Table 2.—*Age Distribution*

	30-39	40-49	50-59	60-69	70 or Over	Total
Number of cases						
Dicumarolized	4	9	15	14	8	50
Nondicumarolized	3	7	18	25	7	60
Sex: male						
Dicumarolized	4	10	12	10	5	41
Nondicumarolized	1	4	16	18	3	42
Sex: female						
Dicumarolized	1	0	2	3	3	9
Nondicumarolized	1	2	3	8	4	18
Mortality						
Dicumarolized	0	0	0	2	0	2
Nondicumarolized	0	0	4	8	1	13
Clinical embolism						
Dicumarolized	0	0	1	0	0	1
Nondicumarolized	0	0	6	4	0	10

Average age of dicumarolized patients 57 years.
Average age of nondicumarolized patients 59 years.

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prothrombin clotting times in these cases.[13] In the early phase of this study the need for repeated checks of plasma prothrombin time on patients with initial normal values (hepatic damage?) was not realized. We now know that such patients can later show decreased prothrombin times. In fact, in 2 nondicumarolized patients of this type embolic processes did occur. Additional evidence in favor of the fact that patients with coronary thrombosis have a disturbance in their coagulation system and tendency toward clotting is obtained from the work of de Takats,[14] who showed that these patients exhibited increased resistance to the action of heparin.

Of the 67 cases showing accelerated prothrombin clotting times, results on whole plasma varied from 11 to 14 seconds and on diluted (12.5 per cent) plasma from 47 to 75 seconds It is our opinion that the increased clotting tendency is *attendant with the vascular occlusion* rather than the cause of it, because at times it does not make its appearance until the second or third day. Nevertheless the equilibrium of the coagulation elements of the blood has shifted to a state favorable to clotting, and this condition favors extension of the thrombus and *the formation of mural thrombi within the ventricles of the heart*.

Having repeatedly observed an increased clotting tendency to be present in coronary thrombosis, and aware of the frequency and danger of emboli, it occurred to us that the use of an anticoagulant might be efficacious in the prevention of such complications in patients suffering from coronary vascular occlusion. During the last year Levine [1] has suggested a similar approach to the problem. He states that he has used anticoagulants in an effort to prevent formation of thrombi but that "the experience is too limited to permit any final conclusions." Working with animals, Solandt and Best [15] in 1938 furnished evidence that anticoagulants may be of benefit in experimental coronary thrombosis. These investigators found that they could gradually occlude a coronary artery by thrombus formation and that this thrombus and the resulting cardiac infarction may be prevented by administration of adequate amounts of an anticoagulant (heparin). Dale and Jacques,[16] also working with animals, showed that dicumarol hindered and, in a fair percentage of cases, prevented the formation of extravascular and intravascular thrombi. Its effectiveness paralleled the reduction in plasma prothrombin activity.

TABLE 3.—*Dicumarolized versus Nondicumarolized Patients*

	Dicumarolized		Nondicumarolized	
	Number	Per Cent	Number	Per Cent
Number of patients......	50	....	60	....
Deaths	2	4	13	20
Clinical embolism .. .	1	2	10	16 6
Number of patients given digitalis	8	....	17	. ..
Deaths of patients who were digitalized	1	12 5	9	53

Premonitory symptoms of coronary occlusion certainly are not often recognizable, and hence the initial process cannot be prevented. However, administration of adequate amounts of an anticoagulant may prevent extension of the thrombus and reduces chances of future formation of mural thrombi or venous thromboses in the lower portion of the body. For economical reasons and because of the ease of administration, dicumarol was selected as the anticoagulant of choice. While heparin institutes immediate effect, its administration raises practical difficulties. Moreover, *vascular complications in our experience and in the reports of others* [17] *seldom* occur before the fourth day. It seems that dicumarolization can be established *before this danger period* is present.

Accordingly, considering the mode of administration safe *and to evaluate its action, dicumarol was administered to 50 patients with coronary occlusion*. The ones selected were those in whom there was a definite clotting *tendency judged by prothrombin time determination* of diluted plasma. No other criteria were used in selecting the patients. *In most instances the drug was started immediately after the initial prothrombin determination*, and the effort was made to maintain the patient's *prothrombin activity between 35 and 50 per cent of normal*. The drug was continued during the hospital course, which *in the average case was at least forty-two days. This carries the patient* well beyond the period of greatest danger as regards embolic phenomena.[17] *The patients treated received an average of 3,400 mg* of dicumarol during the course of administration.

TOXIC EFFECTS

During the two and one half *year period in which we* have administered dicumarol to *patients with coronary* occlusion *we have observed* very few toxic effects of the drug. The only immediate side effects have been a mild diarrhea, which is easily controlled, and occasional nausea or headache. Hypoprothrombinemia and consequent hemorrhage, should it occur, can be *controlled by the intravenous injection of* 37.5 mg. of *menadione bisulfite*.[18] This corresponds to Hykinone *72 mg* Contrary to the reports of a fairly substantial percentage *of hemorrhagic incidents in some* clinics,[19] we have been *more fortunate* in this respect. *Of the* 50 patients to whom *dicumarol was administered*, microscopic hematuria *was noted in 3*. No cases of frank hemorrhage *and no deaths ascribable to* dicumarol occurred in this series.

Several investigators [20] have shown that dicumarol does not disturb the *formed* elements of the blood, *nor does it affect the capillary fragility and clot retraction*. The blood coagulation *time is altered only after* prothrombin *activity is reduced beyond* 50 per cent of normal. *Unfortunately, the erythrocyte sedimentation* rate is increased by the drug to such an extent that it *no longer serves as an index of healing of the damaged myocardium*. However, *in our opinion this disadvantage is outweighed if sufficient benefit from anticoagulant therapy can be demonstrated. Dependence on the*

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sedimentation rate as a guide for allowing coronary patients out of bed has already been somewhat altered by the recent trend [21] to make ambulant all cardiac, including coronary, cases sooner than was once deemed wise.

With regard to so-called delayed toxic reactions, we can report that none have been noted. We have carried several patients on this anticoagulant continuously for over a year without noting any ill effects. One patient has been given the drug regularly for a period of two years with the idea in mind that a recurrence of thrombosis might be prevented. Putnam [22] in New York has carried cases of multiple sclerosis on regular doses of dicumarol over a period of three years.

DOSAGE

We have in our clinic no standard dosage scale. Following the initial prothrombin time determination, the first dose is usually 300 mg. The subsequent dose is estimated by the patient's response to the previous dose. In this manner hyperreactors can be detected before the cumulative effect of several doses is manifest. Determinations have been deemed necessary only every other day because the maximum effect of any given dosage is obtained thirty-six to forty-eight hours after it is given. The prothrombin clotting time of diluted plasma (12.5 per cent) is a more sensitive indicator of changes taking place as the clotting mechanism is altered by the drug. Should the clotting time for 12.5 per cent plasma reach 400 seconds, this is interpreted as a caution signal and future doses are governed accordingly. In a number of selected cases, after it has been satisfactorily demonstrated that the patient is not a hyperreactor and his response can be fairly well predicted, the patient has been continued on dicumarol after discharge from the hospital, returning to the clinic twice a week for prothrombin determinations and succeeding doses. This procedure is not generally recommended and, indeed, is not without hazard, unless complete cooperation of the patient, his physician and the laboratory is secured.

No patient should be given dicumarol unless adequate laboratory facilities are available to check the prothrombin clotting time with appropriately standardized reagents. Experience and good judgment are essential in estimating dosage on basis of response of the coagulation system to the drug.

CONTRAINDICATIONS

No patients should be given dicumarol who have renal disease, evident hepatic disease or a blood dyscrasia with hemorrhagic tendencies. Patients with definite hypertension must be carefully evaluated, and special care taken with dosage. Due attention must be given to the fact that salicylates [23] and quinine [24] exert a dicumarol-like effect on prothrombin activity. A decrease in plasma prothrombin level has been observed in some patients receiving sulfonamides.[25] Although this may be interpreted as a manifestation of toxicity of the sulfonamide and is not to be expected in every patient, it is well worth noting. If it becomes necessary to administer one of these preparations concomitantly with dicumarol, special caution is advised to assure control over the cumulative action.

RESULTS

Of the 60 patients treated in the routine manner for coronary occlusion and not receiving dicumarol, 13 died. Six of these 13 died from clinical embolism, 5 from cardiac decompensation and 2 from sudden unexplained cause, probably ventricular fibrillation. In the group of 50 patients who were given dicumarol, 2 died. One of these had received only two doses of the drug totaling 300 mg. This patient died on the fourth hospital day from renal complications. The last blood urea determination was 138 mg. per hundred cubic centimeters. In the light of present day knowledge this patient would not be considered a candidate for dicumarol therapy because of evident renal dysfunction. The second died of myocardial failure, during an attack of paroxysmal ventricular tachycardia on the seventeenth hospital day.

In the group of patients who were not given dicumarol there were 10 with clinical embolism. There was 1 case of peripheral arterial occlusion: the remainder were pulmonary or cerebral. Six of the 10 cases terminated fatally. The incidence here was 16 per cent, which corresponds fairly closely with the incidence of 14 per cent reported by Blumer.[3] Of the 50 patients receiving dicumarol, only 1 had any clinical evidence of embolism. It is to be noted that in this case the administration of dicumarol was unduly delayed until the eighth hospital day and dicumarolization had not been established when a presumptive cerebral embolism took place. This particular patient, a white man aged 56, entered the hospital four hours after the onset of substernal pain which later was demonstrated to be due to a posterior myocardial infarction. The prothrombin clotting time on the day of admission was found to be 15 seconds for undiluted and 80 seconds for diluted (12.5 per cent) plasma. Unfortunately, the determination was not made again for the next seven days. We have frequently observed a normal value on the day of the attack but find the very next day that the prothrombin clotting time of diluted plasma is decreased. On the patient's eighth day in the hospital a determination gave the value of 14 seconds on undiluted and 67 seconds on diluted (12.5 per cent) plasma. Three hundred mg. of dicumarol was given that afternoon. Twenty-four hours later the patient had twitching of the left hand followed by weakness of the extremity. The next morning value for undiluted plasma was the same and for diluted (12.5 per cent) plasma was 72 seconds. Suspecting that an embolic process had occurred, we again administered 300 mg. of dicumarol. From this point on plasma clotting times showed that dicumarolization had been effected. On the tenth hospital day there was a generalized convulsion followed by a transient left hemiparesis. The blood pressure prior to the convulsion was 80 systolic and 58 diastolic. After this second episode the patient had an uneventful course. He later became ambulatory and left the hospital with little residue from the paralysis. Although the patient was undoubtedly dicumarolized at the time of the second presumptive embolic phenomenon, it would seem to us that the delay in the intital administration of the drug might well have favored the building up of a sizable intramural thrombus.

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Among the 60 cases studied in which dicumarol was not given routinely and in which the incidence of embolism was significant, 1 is worthy of particular comment:

REPORT OF CASE

A white man aged 54 was admitted to one of the private services because of the complaint of a sudden sharp pain down his left arm, followed by a profuse sweat and generalized weakness. He was known to have had diabetes for some five years and was also known to have a moderate hypertension averaging 180 systolic and 100 diastolic. On admission, which was four days after the onset of pain, an electrocardiographic tracing and other laboratory data showed evidence of a posterior myocardial infarction. Shortly after admission his plasma prothrombin time was 14 seconds for undiluted and 57 seconds for 12.5 per cent plasma. No dicumarol was given and no further prothrombin clotting time determinations were obtained for five days.

The patient was quite comfortable for the first four days. On the fifth hospital day he complained of pain in his left foot. It was noted that the toes were slightly discolored and that the foot was cold. Papaverine ½ grain (0.032 Gm.) was given intravenously every four hours. The discoloration increased, however, and in several days a line of demarcation was evident just below the knee. On the fourth day after the first signs and symptoms of embolism had been noted (the ninth hospital day) dicumarol therapy was started. There was no change noted in the limb except for the presence of dry gangrene from toes to knee. On the twelfth day after occurrence of the embolism, while dicumarolization was now considered at a satisfactory and safe level with respect to prevention of further embolism, it was deemed wise to lower this level in the face of a major operation. Accordingly, early on the day of operation the patient was given 37.5 mg. of menadione bisulfite, which resulted in an increase in plasma prothrombin activity from 35 to 65 per cent in eight hours. Anesthesia was initiated with sodium pentothal and continued with ether. No undue bleeding occurred during the midthigh guillotine type amputation, and the patient withstood the procedure well. Dicumarol was continued postoperatively. The stump remained healthy and after ten weeks there have been no further complications.

COMMENT

This is a case in which an embolism of serious nature occurred nine days after the onset of a coronary occlusion. We can only speculate what course the case might have taken had dicumarol been started on admission. The ability of vitamin K derivatives to control the dicumarol level sufficiently to permit major surgery without fear of undue hemorrage is demonstrated. We have now been able to observe the effect of dicumarolization on over 1,800 miscellaneous cases in this clinic and have found the need for vitamin K therapy in comparatively few. In no case when a vitamin K derivative was given in adequate dose (Hykinone 72 mg.) was there failure to respond. This observation is in accordance with the work of others.[18]

In the group of 60 patients who did not receive dicumarol there were 17 with congestive failure who were given digitalis. Of these 17 patients 9 (53 per cent) died, most of them as a result of embolism. In the group of patients receiving dicumarol 8 were given digitalis for congestive failure; 1 of these (12.5 per cent) died. This death has already been mentioned as due to renal complications.

The danger of digitalis preparations in coronary thrombosis has recently been stressed by Askey and Neurath.[26] They reported that digitalis given to 32 patients having myocardial infarction complicated by auricular fibrillation and congestive failure proved to be more harmful than beneficial. Thirty-one of these 32 patients died, 13 of them from arterial emboli. They found that the administration of digitalis did not materially increase the incidence of sudden death from ventricular fibrillation or of rupture of the heart but did significantly increase the incidence of embolism. These authors concluded that digitalis was contraindicated in myocardial infarction. In a group of 100 patients with myocardial infarction studied by Nay and Barnes,[7] 12 were given digitalis. Two thirds of the cases were complicated by embolism. de Takats [27] and Massie and his associates [28] each have shown that digitalis preparations increased the coagulability of the blood as measured by the heparin tolerance and the clotting time. Despite the inability of certain observers [29] to duplicate this effect of digitalis in their cases, we have been able in our clinic to demonstrate repeatedly a decreased prothrombin clotting time on administration of digitalis. It is emphasized that such decrease was noted only in the more sensitive diluted plasma determination. In view of this action of digitalis and the knowledge that confinement to bed, whatever its cause, tends to favor thrombosis,[30] we find it difficult to disregard the need for the action of an anticoagulant. The results obtained in the small group of 8 patients with myocardial infarction plus congestive failure in which digitalis was used without evidence of embolism suggest that dicumarol is capable of opposing the thrombogenic property of digitalis and reducing the incidence of embolism. Consequently it is felt that when congestive failure supervenes in myocardial infarction and the patient is receiving dicumarol, digitalis may be given without fear of enhancing the possibility of thrombus formation. Other drugs widely used in the treatment of coronary vascular disease, such as theobromine and theophylline, have been shown experimentally to possess the same ability as digitalis to increase the plasma prothrombin activity.[31] Here again dicumarol administration may serve to counteract such undesirable action.

Repeated electrocardiograms were made on the 50 dicumarolized patients. We were not impressed by a quicker return toward normal in these tracings than was noted in the patients not receiving dicumarol. There have not been enough patients receiving the drug for long periods of time to suggest that the incidence of recurrence may be reduced.

SUMMARY

One hundred and ten cases of coronary thrombosis with myocardial infarction have been studied. Sixty patients received the accepted treatment for coronary thrombosis. Fifty received the usual treatment plus dicumarol sufficient to maintain their plasma prothrombin activity at 35 to 50 per cent of normal. The incidence of clinical embolism was 16 per cent in the nondicumarolized group and 2 per cent in the dicumarolized group. The mortality rate in the nondicumarolized group was 20 per cent and in the dicumarolized group was 4 per cent.

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We have not been impressed by a quicker return of the electrocardiographic tracing toward normal in the dicumarolized patients compared to those not receiving the drug.

CONCLUSIONS

1. We have observed an increased clotting tendency in most of our cases of acute coronary thrombosis. This is manifested by a decrease in the prothrombin clotting time of diluted (12.5 per cent) plasma.
2. Dicumarol can be safely administered to patients with coronary thrombosis to disrupt this increased clotting tendency.
3. The incidence of embolism as a complication of coronary thrombosis has been significantly reduced in this series of cases by maintaining the prothrombin activity between 35 and 50 per cent of normal during the period of active treatment and early convalescence —a period of six weeks.
4. Digitalization for congestive failure in coronary thrombosis increases the incidence of thromboembolic complications. This hazard may be nullified by the dicumarolization of such patients.
5. Few toxic reactions have been noted in this series. The drug can be administered, if desired, for an indefinite period without ill effects.
6. A comparison of 50 dicumarolized patients with 60 nondicumarolized patients reveals a reduction of embolic phenomena to one eighth and mortality rate to one fifth in the former. Such reduction appears sufficiently significant to warrant further clinical evaluation of this anticoagulant.

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Special Article

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Chief Medical Director, U. S. Veterans Administration
United States Army

With the demobilization of our armed forces approximately 15 million more Americans will become eligible for the medical care offered by the Veterans Administration. When the 15 million veterans in the process of demobilization are added to the 4 million veterans of previous wars, it becomes evident that the medical task of the Veterans Administration is both a challenge and an opportunity. It is a challenge to the nation to provide efficient and advanced medical care to those who have given so much for their fellowmen, and it is an opportunity for the physicians of our country to become part of a medical organization which offers unparalleled opportunities for satisfying medical practice and fruitful clinical investigation.

A public law recently passed by the Congress and approved by the President provides for increased opportunities for physicians in the newly created Department of Medicine and Surgery of the Veterans Administration. The law provides for a new salary scale commensurate with training and experience. In recognition of the value of the specialized training and experience of those certified by the American specialty boards, the law provides for a 25 per cent increase in base pay over those given in the accompanying table.

Physicians in the service will be encouraged to train for certification in the specialty of their choice. In the case of physicians already certified as specialists, original appointments will be made in the full grade or higher. While promotions to positions of higher grade are to be based on merit alone, regular salary increases within grade are provided for as shown in the table. Whenever possible, appointments in specialties and to hospitals in particular geographic areas will be made in accordance with the desires of the applicant.

Rates of Pay

Grade	Pay per Annum *	Qualified to Be
Chief	$8,750-$9,800	Clinical director or chief of service in large hospital; a teacher
Senior	$7,175-$8,225	Chief of service in medium sized hospital or chief of section in large hospital; a teacher
Intermediate	$6,230-$7,070	Chief of service in small hospital or chief of section in medium sized hospital; a teacher
Full	$5,180-$6,020	Assistant to chief of service or section
Associate	$4,300-$5,180	Senior ward officer
Junior	$3,640-$4,300	Junior ward officer

* Pay increased with length of service within these limits.

The magnitude of operations of the Department of Medicine and Surgery, operating as it does ninety-eight hospitals containing 85,000 beds, offers an unusual opportunity for clinical practice and investigation. The opportunity to practice medicine untrammeled by considerations of the ability of the patient to pay for expensive laboratory and x-ray studies is one which many physicians will find particularly satisfying. The large number of patients to be cared for and the unequaled facilities for continuous follow-up studies possessed by the Veterans Administration should make the service particularly attractive to those interested in clinical research. Recognizing that practice deteriorates when theory languishes, encouragement will be given to those capable of and interested in independent investigation.

In order to provide the most advanced and efficient care for its patients, arrangements are being made for affiliation with medical schools and medical centers by those hospitals near such institutions, and wherever possible new hospitals will be built in close proximity to such centers. The daily association with recognized authorities in medicine cannot but be stimulating to the physician and will give him professional associations of lasting value. As soon as certain hospitals are certified by the appropriate boards, residencies for recent graduates will be offered. For those interested in teaching, this plan will provide a pleasant opportunity for the instruction and guidance of young men embarking on a medical career. Since the practice of good medicine must be a continuing educational process, arrangements will be made for physicians to attend courses of study in Army, Navy, Public Health Service, Veterans Administration or civilian hospitals at the expense of the government. In order that its physicians may remain in the advancing front of medicine, arrangements for attendance at medical meetings as part of their official duties will be made.

It is evident that the reorganization of the medical services of the Veterans Administration imposes many problems, but it is at the same time an opportunity which I feel must not be allowed to escape. It is an opportunity to mold an organization to meet our new needs with the same determination and resourcefulness which physicians have always applied in the practice of their profession. It is my determination that the service shall at all times be sensitive to the ever advancing boundaries of medical knowledge and that it shall approach its problems in the spirit of the scientist. Such a working approach, I believe, will make for efficient medical care for patients and satisfying professional practice for physicians. I am convinced that the two are synonymous.

It is natural that physicians are interested in the attendant circumstances of their employment, and an organization conscious of the intimate relation between efficient work and the physical and mental well being of those who make up its very structure can be no less so. It is believed that the salaries already mentioned are equal to and in many cases higher than those which can be earned in civilian practice, particularly when it is realized that they are net and require no deductions for office rental, equipment, drugs and clerical or nursing help. The retirement provisions are those of the federal Civil Service and are based on a 5 per cent deduction from salary. Leaves for vacation and illness are the same as for all Civil Service employees. When physicians are transferred from one hospital to another, the expense of moving dependents and household goods is borne by the government.

The basic requirements for appointment as a physician in the Department of Medicine and Surgery are few. The physician must be a citizen of the United States, a graduate of a school of medicine approved by the Administrator of Veterans Affairs and must have completed an internship satisfactory to the Veterans Administration. He must hold a license to practice his profession in a state or territory of the United States or in the District of Columbia. He must meet the physical standards required by the department or, in the case of those recently separated from the armed forces, must present a copy of the final type physical examination of the Army or Navy completed within ninety days of the date of his application.

An outline of the procedure to be followed and the forms necessary for application may be secured by writing to or appearing in person at any office of the Veterans Administration. Appointments to the junior and associate grades will be made by veterans' hospitals or local offices subject to approval of the central office. Appointments in higher grades will be made by the Chief Medical Director with the advice of special consultant boards. Specialists certified by a board will not be offered an appointment at less than full grade. Applications and supporting documents for such higher grade appointments should be sent by air mail to the Chief Medical Director, Veterans Administration, Washington 25, D. C. Applicants will then be notified of the grade of the appointments offered and of their hospital assignments.

Severe Anxiety States.—Severe anxiety states produce an intensely striking, unforgettable picture. Terror stricken, mute and tremulous, these patients closely resemble those suffering from an acute psychosis in a state of panic. In fact, such patients frequently return from the front with the erroneous diagnosis of schizophrenia on their emergency medical tags. There are coarse tremors of the extremities. The facial expression may be vacuous or fearful and apprehensive. Speech is usually impossible except for a few stuttering attempts to frame an occasional word; nevertheless the patients persist in attempting to communicate with attendants. Some may be able to write although unable to talk. Sudden fits of crying or laughing may occur without reason. The behavior is extremely bizarre and attitudinizing, with periods of excessive activity characterized by running about the ward and leaping over beds. —Grinker, Roy R., and Spiegel, John P.: War Neuroses, Philadelphia, Blakiston Company, 1945.

Clinical Notes, Suggestions and New Instruments

HYPOGLYCEMIA DUE TO INSULAR ADENOMA OF PANCREAS

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Hyperinsulinism[1] is most frequently caused by a benign adenoma of the beta cells of the islands of Langerhans or by a carcinoma of the islet cells.[2] If the suspected adenoma can be found, the treatment is simple and effective—the malignant group requires radical resection of the pancreas and duodenum with a prognosis as different as is the procedure. It seems advisable to separate these widely divergent lesions and group their reports under the title of the causative lesion rather than under the symptom which may be produced. A review of all cases of benign adenomas has been brought up to January 1944,[3] 127 in number, which includes Whipple's[4] listing of 103 adenomas in a series of 160 cases of islet tumors. In this report there are 27 cases of hyperinsulinemia due to carcinoma and 22 of suspected carcinoma, 49 cases out of a total of 176, in which the symptom was not due to benign adenoma. Similarly, carcinoma of the islet cells may be unattended by hyperglycemia.[5] The rarity of the successful surgical cure warrants the presentation of an additional case.

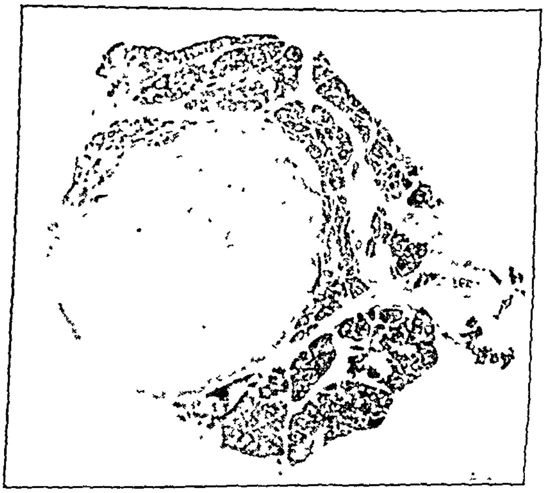

Fig. 1.—Appearance of specimen magnified 4 7 times.

REPORT OF CASE[6]

R. T., a woman aged 55, married, mother of 4 living healthy children, born in Russia, emigrating at the age of 22, was operated on during her first pregnancy in 1914, the appendix being removed for an "extrauterine tumor." In 1926 a panhysterectomy and in 1934 a cholecystectomy were performed Soon after the third operation, attacks occurred at intervals of three to four weeks, characterized by weakness, dimness of vision and cold extremities, merging into a deep sleep of five to six hours from which she awakened torpid and lethargic. Anorexia and nausea followed, as well as a sense of severe pressure in the right temporoparietal region. Amnesia during the attack was partial or complete. Attacks occurred only during the day and seemed to be induced by heavy work.

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[1] Harris, Seale: Hyperinsulinism and Dysinsulinism, J. A. M. A. **83:** 729-733 (Sept. 6) 1924.

[2] Frantz, V. K.: Tumors of Islet Cells with Hyperinsulinism, Ann. Surg. **112:** 161-176 (Aug) 1940.

[3] Clyne, R. M.; Leeds, H. M., and Cowdery, J. S.: Spontaneous Hyperglycemia Due to Islet Cell Tumors of the Pancreas, New York State J. Med. **45:** 405-409 (Feb 15) 1945.

[4] Whipple, A. O.: The Surgical Therapy of Hyperinsulinism, J. internat. de chir. **3:** 237-276, 1938.

[5] Frantz, V. K.: Tumors of Islets of Langerhans with Hyperinsulinism, New York State J. Med. **41:** 881-883 (April 15) 1941.

[6] Case presented at the clinical conference of the Beth Israel Hospital, May 20, 1940.

Her first admission to the Beth Israel Hospital on June 7, 1937 was to the neurologic service, from which she was discharged after a week with the diagnosis of hysterical amnesia. This has been a not infrequent error in diagnosis, since neurologic and psychiatric symptoms are frequently noted in hyperglycemia from any cause.[7]

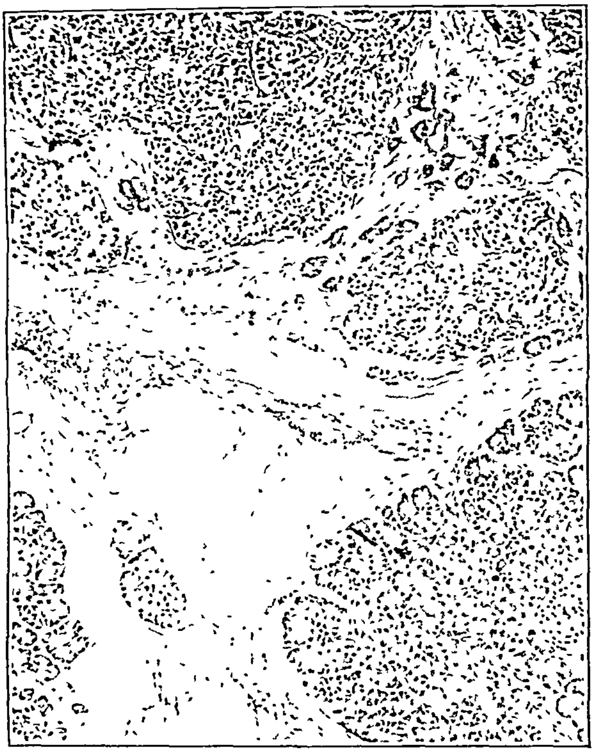

Fig 2—Upper part of section, insular adenoma; lower part, pancreatic tissue with normal islets

Examination of the patient, who was well developed and well nourished, showed few findings related to the symptoms. She was alert, intelligent and cooperative except in discussion of the cause of her emotional disturbances. Blood glucose was 56, 59 and 66 mg. per hundred cubic centimeters. The glucose tolerance test is noted in the table, line 1.

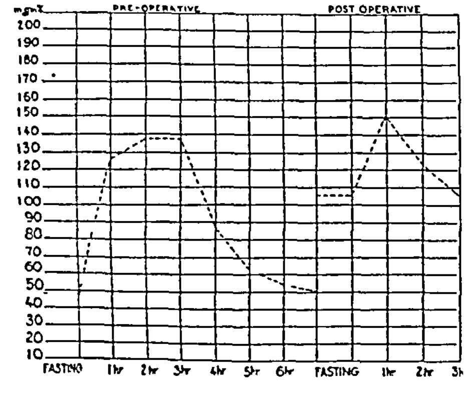

Fig 3—Composite glucose toleration curve.

Her second admission occurred on Dec. 28, 1938 for increasing frequency and severity of attacks at intervals of two to three days or two to three weeks, followed by a comatose state lasting four to six hours. Orange juice seemed to be the only food which hastened recovery. Blood glucose ranged from 43 to 87 mg. per hundred cubic centimeters in casual specimens, averaging 58 mg. per hundred cubic centimeters. The glucose tolerance test, line 3 in the table, required six hours for a return to the fasting level. One examination of 50 mg. per hundred cubic centimeters contained 20.2 mg. of nonfermentable reducing substance. Blood amylase 12 units at 37 C. and urine amylase 1,200 indicated a deficiency of starch-splitting enzymes. The blood sugar on an all starch diet was 43 mg. per hundred cubic centimeters and on monosaccharine 53 mg. per hundred cubic centimeters. At no time was sugar, acetone or diacetic acid present in the urinalysis. The basal metabolic rate was minus 7 and minus 3 per cent.

Her third admission occurred on April 24, 1940 for a typical symptom complex[8] of hypoglycemia and blood sugar levels persistently below 30 mg. per hundred cubic centimeters. A diagnosis of hyperinsulinism was made and, after consultation, the patient was transferred to the surgical service with the diagnosis of benign islet adenoma of the pancreas. The details of the history given to the house surgeon were overheard by a patient in an adjoining bed, a young person with severe diabetes, who volunteered the observation that the symptoms were the same as her own after an overdose of insulin.

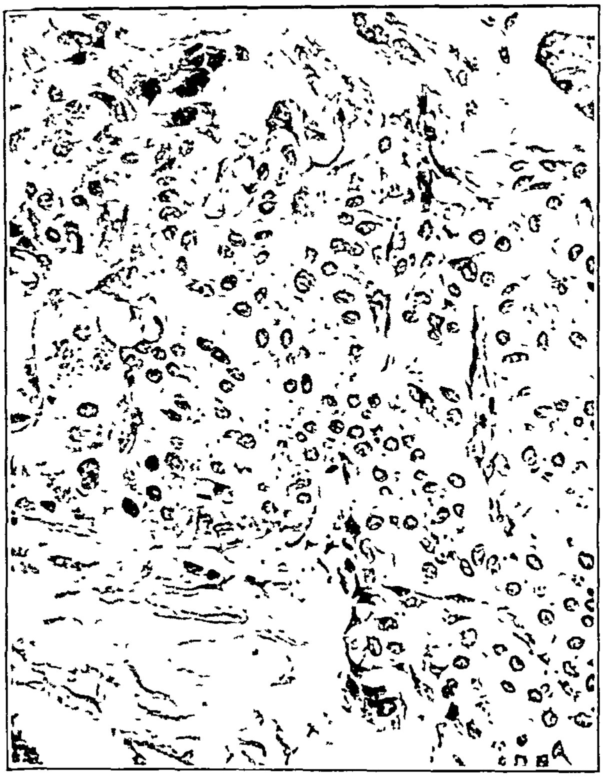

Fig 4—Insular adenoma. Characteristic structure of islet tumor.

Operation was performed on April 29, 1940. Spinal anesthesia was administered with 11.5 cc. of Jones solution. The cholecystectomy scar was excised, exposing component parts of the abdominal wall. Extensive firm adhesions of the omentum were separated from the parietal peritoneum, the under surface of the liver and the duodenum In the head of the pancreas, below the arch formed by the first two portions of the duodenum, an area about 1 cm. in diameter differed in consistency from the adjacent pancreas. This was pointed out to the staff assistants, who were not convinced of its presence.[2] In order to expose the tumor, the lower edge of the first and second portions of the duodenum were freed from the pancreas and the tumor, encircled by a rim of normal pancreas, excised from the angled bifurcation of a large branch of the superior duodenal artery. Defect in the pancreas was sutured with interrupted 000 chromic catgut. The abdominal wall was sutured in layers, without drainage, catgut throughout except for three 30 gage wire tension sutures. The duration of the operation was forty-five minutes.

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[7] Bothe, F. A.: Surgery in Metabolic Disease, Internat. Abstr. Surg 78: 461-476, in Surg., Gynec. & Obst., June 1944

[8] Banting, F. G., and Best, A. H: Internal Secretions of the Pancreas, J. Lab & Clin. Med 7: 251-266 (Feb) 1922.

The pathologic examination was made by Dr. Albert Plaut. The specimen was a piece of glandular tissue measuring 23 by 18 by 14 mm. A previous incision partly bisected it. On completion of the incision an almost spherical nodule, 12 mm. in diameter, was found centrally located in the specimen. It was clearly and sharply demarcated from the surrounding lobules of glandular tissue. The glandular tissue was the dull yellow-brown of normal appearing pancreas. The nodule was almost homogeneously gray, except for a few radiating, more shiny gray strands, which appeared to come from the center toward a pseudocapsule. Adherent to the entire specimen was a length of blood vessel, measuring about 1 cm.

A skin flap was 19 cm. long and 1.5 cm. wide, together with underlying fat.

Microscopic examination revealed that the tumor consisted of cords and heaps made up of cells of islet type. The topographic relation between cells and capillaries was the same as found in normal islets. The cellular masses were separated from one another by fairly dense connective tissue. Pseudoglandular structures were numerous, notably in areas where the tissue appeared choked by fibrosis. The cellular pattern was regular. A narrow zone of pancreatic tissue at the edge of the nodule was rather fibrotic; otherwise the surrounding pancreatic tissue appeared normal, with moderate obesity. The islands of Langerhans in this tissue were normal.

The postoperative course was free from immediate complications. Blood sugar eight hours after glucose infusion reached 194 mg. per hundred cubic centimeters. There were no further symptoms of hypoglycemia. The patient was alert, responsive and "interested in living." Two weeks after operation signs of a low grade intra-abdominal infection appeared and on May 20 an incision was made into a localized collection of chocolate colored opaque fluid containing autolyzed fragments impossible to identify but which did contain amylase, lipase and trypsin. The wound healed rapidly and the patient was sent home on June 13, 1940.

SUBSEQUENT COURSE

Seven months later the patient was operated on for a fistula-in-ano subsequent to ischiorectal abscess four months before. The glucose tolerance test is noted in the table, line 8. The patient was readmitted for follow-up May 4, 1945, five years after operation. She has been continuously symptom free and in excellent physical and mental health. The glucose tolerance test is noted in the table, line 9.

The glucose tolerance tests are vivid in their difference before and after operation. These examinations should have been made at the same intervals and continued for a six hour period. The fasting blood sugar levels below 30 mg. per hundred cubic centimeters on all tests made during the week before operation are as clearly indicative of the disease as are the postoperative levels of 90 to 120 mg. per hundred cubic centimeters indicative of the cure. The first postoperative test (line 5 in the table) may have been due to the infectious process in the region of the pancreas. By eliminating the figures in this test, an average is shown which is more fairly indicative of the metabolic change and is perhaps more nearly correct. A striking feature in the glucose tolerance curves is that in preoperative tests the fasting blood sugar level was never reached in less than six hours, whereas after operation the fasting levels were reached in three hours or less.

COMMENT

The progress in the recognition and cure of hypoglycemia due to hyperinsulinism was promoted by Banting,[8] who postulated the condition in 1921. It was pathologically demonstrated in C. J. Mayo's case[9] in 1927 and first cured by Roscoe Graham[10] in 1929. Whipple's numerous contributions have greatly stimulated interest in the surgery of the pancreas.[11] A number of cases of hyperinsulinism have been successfully treated by resection of the pancreas[12] in which neither an adenoma nor a carcinoma of the islet cells has been found. A large percentage of islet adenomas not found at operation have been found at a second operation or on autopsy. Frantz[2] reports 70 islet adenomas in which series 46 were found at operation and 24 found at autopsy. Whipple[13] reported 82 cases in which 47 were not found, of which 6 were located at reoperation, 4 in specimens of resected pancreases and 4 on postmortem examination. It is obviously difficult to locate a benign islet tumor, a difficulty increased when such tumors are multiple or when present in aberrant pancreatic rests.[7] Since the tumor may differ but slightly from the consistency of the adjacent pancreas, as in the case presented in this report, a finer tactile sense must be developed by the experienced surgeon.

Glucose Tolerance Tests

Number	Date	Fasting	½ Hour	1 Hour	2 Hours	3 Hours	4 Hours	5 Hours	6 Hours	7 Hours	8 Hours
1	6/14/37	56	..	174	182	148	...	...	...	...	...
2	12/29/38	61	90	111	88	80	...	...	...	...	...
3	1/ 6/39	31	..	...	143	216	154	92	54	50	...
4	4/24/40	22	74	93	133	100	40	35	...	...	...
Average		40	82	126	138	138	87	63	54	50	...
Postoperative											
5	5/ 8/40	100	133	190	153	178	174	172	118	108	103
6	6/ 3/40	111	118	148	120	102	...	...	...	...	...
7	6/12/40	104	129	135	...	118	79	89	...	...	...
8	1/18/41	91	125	133	122	100	...	...	...	...	...
9	5/ 4/45	118	..	184	131	95	...	...	...	...	...
Average		105	126	158	131	118	126	130	118	108	103
Average, excluding line 5		106	124	150	124	107	...	...	...	...	...

SUMMARY

Benign adenomas of the islet cells of the pancreas causing hypoglycemia by hyperinsulinism should be separated in reports from the malignant tumor of the pancreas, which occasionally give a similar symptom complex but from which the treatment differs radically. The lesion gives a typical and easily recognizable symptomatology.

Up to January 1944, 127 islet adenomas have been reported to which the case herewith presented has been added, with a report of a five year cure.

All cases of hyperinsulinism due to benign adenoma may at present be cured by surgery, depending only on the ability to locate the tumor.

1150 Park Avenue.

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9. Wilder, R. M.; Allan, F. N.; Powers, M. H., and Robertson, H. E.: Carcinoma of Islands of Langerhans: Hyperinsulinemia and Hyperglycemia, J. A. M. A. **89**: 348-358 (July 30) 1927.

10. Howland, G.; Campbell, W. R.; Maltby, E. J., and Robinson, W. L.: Dysinsulinism, J. A. M. A. **93**: 674-679 (Aug. 31) 1929.

11. Whipple, A. O., in Nelson's Loose Leaf System of Surgery, New York, Thomas Nelson & Sons, vol. 3, chapter 4A, p. 5; Present Day Surgery of the Pancreas, New England J. Med. **226**: 515-526 (March 26) 1942; A Consideration of the Surgical Treatment of Tumors of the Pancreas, J. Tennessee M. A. **35**: 179-189 (May) 1942. Whipple and Frantz.[13]

12. Holman, Emile, and Railsback, O. C.: Partial Pancreatectomy in Chronic Spontaneous Hyperglycemia, with Review of Cases of Hypoglycemia Surgically Treated, Surg., Gynec. & Obst. **56**: 591-600 (March) 1933. David, V. C.: Indication and Results of Pancreatectomy for Hypoglycemia, Surgery **8**: 212-224 (Aug.) 1940.

13. Whipple, A. O., and Frantz, V. K.: Adenoma of Islet Cells with Hyperinsulinism, Ann. Surg. **101**: 1299-1335 (June) 1935.

Council on Physical Medicine

The following article has been adopted by the Council on Physical Medicine:

The Council wishes to express its appreciation for the valuable cooperation of the Consultants on Ophthalmic Devices in reviewing this article. The consultants are Drs. Walter B. Lancaster, chairman; Thomas D. Allen, Charles A. Bahn, S. Judd Beach, Conrad Berens, Frederick C. Cordes, Alfred Cowan, William H. Luedde, Lawrence T. Post and Avery D. Prangen. This paper was also submitted to the American Orthoptic Council and embodies the criticisms and suggestions of that council.

Howard A. Carter, *Secretary.*

WHAT IS ORTHOPTICS?

WALTER B. LANCASTER, M.D.
Boston

Orthoptics deals with defective habits of seeing, defects of binocular vision and defects of ocular motility. How perfectly adapted it is to deal with many of these defects will become apparent when the nature of the defects is made clear. It will also become clear that much which passes for orthoptics is far removed from the real thing.

But first a few words about the history and organization of orthoptics in America. There is a Council on Orthoptics composed of twelve ophthalmologists and four associates who are orthoptic technicians. The ophthalmologists are elected one annually for three years by each of the four interested national medical societies. The associate members are chosen from the American Association of Orthoptic Technicians. One every year for three years is selected by the council; the president of the Association of Orthoptic Technicians, is a member ex officio. Thus the orthoptic technicians have the selection of one associate member of the council.[1] The council exercises general supervision over orthoptics. In particular it issues certificates to orthoptic technicians who may apply and are found competent and who comply with the regulations of the council. At present about seventy-five orthoptic technicians hold certificates, but many of these are not active. However, there is no legal restriction limiting the practice of orthoptics, and most of the orthoptic practice is carried on by optometrists, nurses, office assistants and doctors. Too often this consists in the use of some more or less elaborate apparatus or automatic machine which they are taught to use by the manufacturer's traveling representative. The patient comes day after day and is placed before the apparatus or given pictures to look at with some form of stereoscope. Of actual teaching in the proper use of the term there is very little because the operator has hazy, often erroneous, conceptions of what is wrong and what needs to be done to correct it.

Inevitably one judges orthoptics by the work of such technicians as one has seen. There are only a few who are masters of the best technic, and therefore many doctors, even ophthalmologists, have no first hand knowledge of good orthoptics and on the basis of their own limited experience some condemn the whole thing, some condemn various parts.

The best modern orthoptics was developed in London under Miss Maddox, daughter of the ophthalmologist famous for his work on ocular motility. There is also a French school, but not much has been done by German or other European ophthalmologists. Several American orthoptists have studied in Europe and brought back the ideas of the Maddox school to this country. The oldest school of orthoptics in this country is in New York at the New York Eye and Ear Infirmary. Others have been started at St. Louis, Washington, D. C., Milwaukee and Rochester, N. Y.

Since so much of the orthoptics is done in doctors' offices by technicians whose duties are not limited to orthoptics, and since the training and certification are supervised by ophthalmologists who are not themselves expert in the technic of orthoptics, it was inevitable that the ophthalmologists should overemphasize that part of orthoptics on which they are best informed. Thus they stress the diagnosis of defects of ocular motility and the measurement of deviations which are the province of the doctor and lay too little emphasis on the art of the technician in dealing with the patient. Many doctors have found it convenient to assign to the assistant who does the orthoptics other duties, such as perimetry or refraction or assistance in history taking or records. The remainder of this paper will be limited to orthoptics properly so called.

The defects of binocular vision or of ocular motility are divided into two groups: heterotropia and heterophoria. For the purpose of this paper it is unnecessary to enter into the details of diagnosis and the many subdivisions of classification. What is necessary for a clear conception of orthoptics is an understanding of the nature of heterotropia and of heterophoria in order to appreciate the treatment, since orthoptics is a system of treatment, not a system of diagnosis.

HETEROTROPIA

Ocular motility is necessary because the retina is not equally sensitive all over. The macular area and especially the fovea is far more sensitive and has more acute vision than the periphery. When one wishes to scrutinize an object, the eyes have to be moved so that the image of the object falls on the fovea. This is accomplished by moving the eyes in their orbits and usually the head as well. It is called fixation. Since there are two eyes, it is necessary for normal binocular vision that the two fixate the same object. Otherwise, if the object is imaged on the fovea of one eye and not on the fovea but somewhere on the periphery of the other retina, diplopia and a disagreeable sensation result. To take care of this, the two eyes are linked together in their innervation as a single organ (the binoculus). The innervation necessary for the movements of fixation is reflex and automatic and goes to the two eyes equally so that they move together. Thus if one eye is covered and the other fixates, both eyes move and when the cover is removed that eye is seen to be fixating the same object as the fixing eye. This is the ideal coordination. As a matter of fact it is never exact. The covered eye never assumes the exactly correct position. If the deviation is less than ¼ or ½ degree it is usually disregarded and the position is called orthophoria. If the deviation is one of divergence it is called exophoria and if it is one of convergence it is called esophoria, while a vertical divergence is a hyperphoria.

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[1] The following have been members of the council arranged in order of years of service on the council; the names starred are the present members: Hardy,* Prangen,* Dunphy, Hitz,* Allen,* Costenbader,* Cordes, Cowan, Cushman,* Fralick,* McCaslin,* Vail, Wheeler, Clay, Dunnington, Gifford, Goar,* Gradle,* Guibor, Lancaster,* Boyes * and Bulson. Associate members: Miss Stark,* Miss Sobacke, Miss Wells, Miss Dicke, Miss Lancaster, Miss Brunn, Miss Powell * and Miss Enos.*

Another reflex is needed to correct this deviation which occurs when the fixation reflex alone is acting. This is the fusion reflex. The stimulus is the presence of two images of an object not on corresponding points of the two eyes, for example one on the fovea of one eye and the other not on the fovea of the other eye. This double stimulus automatically gives rise to innervation, which moves the eyes the (usually) slight amount needed to correct the deviation. The deviation which exists when there is a phoria is often spoken of as a tendency to deviate, since it is not present but latent so long as fusion is allowed to act. Modern physiologists stress the important fact that it is a real deviation and not merely a tendency to deviate. The essential thing is to recognize the role of fusion. Without fusion the deviation is very real and actual—not a mere tendency.

If the deviation is present even when the eye is not covered, it is called heterotropia or tropia or strabismus or squint. The difference between heterophoria and heterotropia is this, and it is quite important to understand it: when one eye is covered and a person looks at an object, the fixation reflex is acting. When both eyes are permitted to look at the object, fusion reflex acts also. In strabismus the fusion reflex does not overcome the deviation—fusion fails. In heterophoria the fusion reflex is effective and does overcome the deviation so as to produce single vision. In the absence of the fusion reflex the eyes assume the fusion-free position,[2] any phoria which is present becomes manifest and so can be measured. The simplest way to find the fusion-free position is to cover one eye and see what happens behind the cover. As the cover is quickly removed the eye will be seen to make a movement of redress to correct the deviation (the phoria).

Besides the use of the cover there are other ways of detecting and measuring the deviation which exists in heterophoria. In all cases what is done is to eliminate the fusion reflex; some methods do this more effectively than others.

The importance of measuring the phoria consists in this, that it is a means of ascertaining what the task is which has to be performed by the fusion reflex in order to get binocular single vision. Whether this task is easy or difficult, that is, whether it will cause symptoms, depends on two things: first, on how large it is. This is measured in prism diopters. It is the strength of the prism which will correct the deviation. Second, on the ability of the patient to overcome the deviation. This is the amplitude or range of fusion.

The disorders of motility and binocular vision in which orthoptics is interested are chiefly concerned with fusion. Fusional power is capable of considerable increase by suitable exercises. The power to fuse is measured by the strength of prism which can be overcome in the interest of single binocular vision. It is called the amplitude of fusion. Thus, if a person can overcome a prism of 30 diopters base out but no more, he has a prism convergence of 30 diopters. If he can overcome a prism of 6 diopters base in but no more, he has a prism divergence of 6 diopters. The measurement and interpretation of the amplitude of fusion require considerable skill and understanding.

By following the natural history of a typical case of strabismus one can get a good idea of the field of orthoptics and of the importance of seizing the best time, the right age, to teach any particular skill. This will be followed by illustrations drawn from heterophoria, which is the other important field of orthoptics.

In neither case will any attempt be made to give a complete account of the various therapeutic measures available to the orthoptic technician. Rather the attempt will be made to show that the trained orthoptic technician has such an understanding of the physiology, normal and pathologic, of the visual act that she can put her finger on the defective function and apply methods of treatment proved by experience to be effective in restoring that function to normal performance. This in contrast to the untrained technician, who has one or several pieces of apparatus he uses for all cases routinely.

DEVELOPMENT OF THE VISUAL APPARATUS

At birth the normal child has very imperfectly developed eyes. There is no macula as yet, the optic nerve fibers are not yet myelinated, the ciliary muscle is not ready to function, the visual acuity may be estimated as of the order of 6/1,000 (practically blind). By 6 months the acuity may be 6/300, at 9 months 6/72, at 2 years 6/12, at 3 years 6/9, and not much before 5 years of age is vision equal to 6/6, while acuity as well as other visual functions continue to improve for several years longer before reaching their maximum efficiency.[3]

Since the anatomic parts of the visual apparatus are not in condition to function well, it is obvious that the physiologic side of seeing is quite rudimentary at birth. Hand in hand with the growth and development of the visual apparatus anatomically is its development physiologically. Here it is important to differentiate those functions which require only the passage of time and the completion of the anatomic apparatus for becoming perfect and those functions which require usage, practice, learning. Thus the finer movements of the vergence reflex (binocular fixation of near objects) cannot develop before the structure of the fovea is complete; but neither can they develop without usage. A useful classification is that between conditioned and unconditioned reflexes. The unconditioned reflexes are inborn and develop independently of usage; examples are the pupillary reaction to light and retinal adaptation to light and darkness. The conditioned reflexes are dependent on usage and on reinforcement. A variety of possible alternatives may present themselves, and which particular type of reflex prevails depends on the "reinforcement" which goes with it, depends on which of the possible alternatives gives the most comfortable easy working of the apparatus, on which gives the greatest reward or satisfaction. This is called reinforcement. If an ocular reflex develops only on usage, then if there is no usage there is no development. Moreover, if the reflex for some reason fails to develop in its proper sequence it may become "extinct"; that is, it may not be capable of restoration by usage attempted at a later date.

A few examples will show the practical bearing and importance of these basic principles. The first example deals with amblyopia ex anopsia and also illustrates the importance of suppression, which will be mentioned again and again, since it is the most important feature of orthoptics; first because more patients have it than any other orthoptic disability, second because there is no other way to cure it except by orthoptics and third because it is so neglected by ophthalmologists as a source of ophthalmic failure.

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[2] The position of the eyes when fusion is eliminated is called the fusion-free position. It is also called—miscalled—the position of rest. This is misleading, since it implies that the eyes are at rest, whereas they are by no means at rest since they are acting under the fixation reflex.

[3] Chavasse, F. B., in Worth's Squint or the Binocular Reflexes and the Treatment of Strabismus, ed. 7, Philadelphia, P. Blakiston's Son & Co., Inc., 1939, p. 107.

1. Suppose at 2 years of age a child ceases to use one eye. Vision may be 6/12 in each eye at this stage of development. Suppose that for some reason the child learns to suppress one eye. From that time this eye ceases to progress toward better vision. Not only that, but it actually loses some of its already acquired vision and in a few months the vision in the eye that is being suppressed will have dropped to say 6/18, while the vision in the eye that is being used every day has progressed to 6/8 and as time goes on to 6/6. Meantime the unused eye has dropped farther back to say 6/20 or 6/30 or even less.

If now at the age of say 4 years the good eye is occluded by a suitable cover worn continuously all day, the patient is forced to use the poorer eye and it rather rapidly improves under usage. In a few weeks or months it will be back where it was when usage was first interrupted, viz. in this case vision equals 6/12. It will continue to gain, but more slowly, until it overtakes the other eye.

But if the occlusion of the good eye is not begun until the stage of normally developing visual acuity is passed—say at 10 years of age or older—the progress of the poor eye, even though it is now being used constantly, will be very slow and will seldom reach the normal which could be attained if the treatment was given during the period of natural development of visual acuity.

2. A second example is the development of the near reflex, which comprises contraction of the pupil, convergence and accommodation. The convergence-accommodation relationship, which becomes such an intimate relationship in the normal individual, is present only potentially at birth. Various obstacles may interfere with the development of this reflex. Suppose the obstacle is the common one of hypermetropia. As the ciliary muscle develops it becomes possible to focus the image on the retina with more precision. As the macular area develops so that it is capable of utilizing a clearer image, the inducement, the reward, the reinforcement become greater for good focusing or accommodation. The child finds that it sees better by accommodating, thus securing a better image on the retina. It also finds that by converging more strongly it is easier to accommodate. This greater ease of accommodation is an effective reinforcement of the convergence. However, the excess of convergence produces diplopia. Unless this is taken care of—eliminated—the reward is lost, the reinforcement is nil. To eliminate the diplopia is easy by the method of suppression. Then the reward is satisfactory and the reflex is reinforced and soon becomes established. The child is now cross-eyed but is well satisfied because he sees more clearly and comfortably.

3. A third example is furnished by anomalous correspondence. Normally an object seen by both eyes is imaged on corresponding points and is seen single, thanks to the fusion reflex; but in this case the object is imaged on the fovea of one eye and off the fovea of the other eye; result, diplopia. The patient has to learn how to localize in the same place or, rather, in the same relative direction, a stimulus impinging simultaneously on the fovea of one retina and on an eccentric element of the other retina. If the strabismus has developed at a sufficiently early age and if he is adaptable and there is time enough, he usually develops a sort of makeshift binocular vision. Burian has listed the conditions necessary for this to develop as (1) the presence of a certain amount of binocular cooperation—binocular vision must have developed to a certain stage (or be inborn); (2) suitable age and adaptability of the patient; (3) the time elapsed since strabismus became manifest; (4) the type of motor anomaly, and (5) the type of test used, all having important influence on the findings. First he learns to suppress the detrimental image on the fovea of the deviating eye, which conflicts with the desired image seen by the other eye (the straight or fixing eye) on its fovea. Second, an attempt is made to set up a new sensorial relationship whereby some point of the retina of the deviating eye (it tends to be that on which the image of the object being fixated by the straight eye now most frequently falls) learns to see it in the same direction as the straight eye sees it. This is a secondary, new and anomalous way of seeing or projecting it. It is usually called anomalous correspondence and it is one of the stiffest stumbling blocks to the cure of strabismus with restoration of binocular single vision.

What I wish to stress is that the acquisition of anomalous correspondence is an example of learning to see by usage, an example of forming a conditioned reflex. The reinforcement which fosters the formation of this reflex is first the satisfaction of the strong urge toward binocular vision which exists at this age or stage of development even though circumstances make normal binocular vision impossible and, second, the satisfaction of getting rid of a conflicting though fainter image, which tends to be superposed on the image of the object being fixated by the straight eye.

In the same way one should stress the fact that the technic to be followed in treating this condition depends on an understanding of the physiology, normal and pathologic, an understanding of the habits involved and the technic of changing (reforming) habits. The suppression of the foveal image of the deviating eye must be overcome. The patient must be made to become conscious of the stimulation of the fovea and learn to suppress instead the anomalous image (which is always fainter, since it is peripheral, not foveal).

4. A fourth example is reading, which after all is just a complicated conditioned reflex. The apparatus comprises (1) the eye—the visual apparatus in the limited sense—and (2) the neuronic pathways in the brain which are an essential part of seeing in the larger sense of perceiving and understanding what is looked at.

The anatomic components of the visual apparatus and the general layout of the neuronic pathways develop, to a large extent, unconditionally, solely as a matter of time; but, for reading, a further development of the neuronic pathways and a coordination of different parts of the brain, conditioned on usage, an accumulation of memories and experience, all are required for skilled performance. Ordinarily, the process of acquiring this conditioned reflex, the process of learning to read, goes on fairly smoothly with a succession of adjustments and adaptations and acquisitions which take years to perfect.

There may be obstacles, however, which are hard to overcome. The neuronic pathways may be confused, a child may be left handed, may have crossed dominance between eye and hand, resulting in reading difficulty, mirror writing or the like. To overcome these and other difficulties is the task of the specialist in reading difficulties, which may be regarded as a branch of orthoptics but which is not usually taught in the courses for orthoptists or required in the examination for the certification of orthoptic technicians.

These four examples suffice to show the province of orthoptics in the treatment of defective habits of seeing and of disturbances of binocular vision and motility in children.

The principle then is that both anatomically and physiologically the development of the visual apparatus is incomplete at birth. As time goes on, some of the processes automatically are perfected, some become perfected only by usage, by practice. It is not assured that they will progress in the normal or ideal way. Obstacles may turn the course of development into wrong channels. It is the province of the orthoptist to untangle the complications and lead the child into the normal path to the acquisition of normal reflexes. Thus the cross-eyed child must be taught (forced) to use the amblyopic eye and so recover its ability to see. He must be taught not to suppress but to see double instead, as a normal child does if his eyes deviate; he must be taught to overcome the diplopia by fusion and binocular vision as a normal child does, rather than by suppression. This is done first on a major amblyoscope, and then the child must be further taught to see properly "off the machine" in casual seeing. Naturally the different types of strabismus require different and appropriate methods of treatment. To enumerate them is beyond the province of this paper.

HETEROPHORIA

To return to the other type of motor defect—heterophoria. There are three ways of treating a phoria: (*a*). By operation one can actually reduce the deviation. The eyeball is shifted in the orbit to a position nearer orthophoria, with the result that now fusion has a smaller adjustment to make. (*b*) The adjustment can be made in part by prisms incorporated in the spectacles. This reduces the task of fusion. (*c*) The amplitude of fusion can be increased by suitable exercises so that the task of adjustment to be made by fusion, though no smaller, is easier because the capacity of the adjusting mechanism is greater. This is the function of orthoptics. By suitable exercises in the office and at home it is possible to increase rapidly the amplitude of fusion, and it is found that the patient's task of dealing with heterophoria becomes much easier and the symptoms of eyestrain are relieved. Sometimes not only is the amplitude of fusion increased but the amount of deviation (phoria) may actually be diminished.

Right here a prevalent misconception should be mentioned. It is commonly (and naturally) thought that the increase in range or amplitude of fusion is the result of stronger muscles. According to this view the task of the orthoptic technician is to strengthen certain weak muscles, and the explanation is given to the patient that the eye deviates because of a weak or lazy muscle. This naive conception misses the mark. It leads the attention in the wrong direction. To be sure one function of exercises is to strengthen muscles, but much more commonly their function is to increase the control of the muscles, the coordination of the movements by the nervous system. For example, in practicing the piano one learns to manage the fingers; proficiency as a performer is not a matter of strong muscles but of perfection in the control and use of the muscles. So with drawing, writing, dancing, juggling: practice and exercises and teaching are aimed at the control or coordination of the muscles. The mechanism for ocular movements is a neuromuscular mechanism. The muscles are over a hundred times as powerful as is needed to move the eyeballs if all the fibers of a muscle contracted at once. Hence only a small percentage of the muscle fibers have to act at one time, and as the other fibers are resting they are well able to perform this task when their turn comes and the first lot are allowed to rest. It is to the "neuro" part of the mechanism, not the muscular part, that attention should be directed.

This naive conception of a hypothetical weakness of the muscle or muscles is prevalent among surgeons. They conceive of a tenotomy as aimed at weakening the muscle tenotomized or receded and they conceive of a resection or advancement as strengthening a muscle. The correct conception of shifting the position of the eye in the orbit to a position nearer the zero position (that is, the position where the deviation is zero and consequently the task of the muscles is greatly reduced) explains why it is so frequently best to combine a tenotomy of the antagonist with a resection of a muscle (Dr. Edward Jackson says always, but nearly always is better, though it lacks the emphasis of exaggeration).

A few examples will make clearer what can be accomplished by orthoptics and how orthoptics and other methods of treatment dovetail together in any well conceived plan of dealing with defects of motility and binocular vision.

Esophoria.—(*a*) This is often amenable to glasses which reduce the accommodation, since reduction in accommodation carries with it reduction of convergence. (*b*) Often there is a greatly diminished amplitude of divergence. While the right eye can be abducted easily to its outer canthus and the left eye to its outer canthus, say 50 degrees either way, yet when prism divergence (often miscalled abduction) is tested, diplopia may come at 1 to 1½ degrees (2 or 3 prism diopters) and, as the prism strength is gradually reduced, recovery of single vision may not occur until zero is reached or even beyond zero. Thus the need is clear of increasing the power of divergence, and since the muscles are amply strong as shown by the abduction of either eye (no paresis) it is possible to teach the patient to use his muscles to better advantage and greatly increase his power of divergence. Exercises on the major amblyoscope and other instruments in the office, and home exercises with prisms base in, are very effective. These should be done say ten times a day for a matter of three minutes at a time. (*c*) Such patients are often greatly relieved by temporarily wearing prisms base out until their divergence is increased by exercises enough to dispense with them.

(*d*) There are a good many cases in which operation is indicated, since it is much more rapid in its results and does not make demands on the patient which the doctor may have difficulty in getting him to meet—indeed, it may be impossible for some busy patients to find time for ten to twelve periods of three minutes every day. One is often surprised at the gain that may come from two or three periods a day, but, if the gain is not satisfactory, operation is the proper alternative. After operation a period of orthoptics is frequently desirable, since the patient has to learn a new way of cordinating his muscles after an operation and since in many cases he continues to fall back on suppression as the easy way to escape diplopia without the effort of fusion. What I wish to emphasize is that treatments by glasses, by operation and by orthoptics need to be combined and are not mutually exclusive.

Exophoria.—This is very successfully treated by orthoptics in many cases. If the exophoria is associated with a decidedly poor amplitude of convergence, the indication is clear that the amplitude of convergence should be increased. The response to suitable exercises given with sufficient frequency is usually prompt and is accompanied by relief of symptoms. Here again home exercises are an important aid to rapid progress. One would not think of learning to play the piano with, say, two lessons a week of half an hour and no home practice. The same is true of acquiring any other skill, as in games. The oftener the movements are repeated, the greater the facility—"practice makes perfect." Many persons with exophoria are helped by wearing prisms base in their glasses.

When time is important and it is not practical to give the needed exercises either in the office or at home, operation offers a prompt and effective treatment, especially for the larger amounts of exophoria too large for prisms in glasses or when convergence may be fair but divergence is excessive. Here again postoperative orthoptics is very useful in securing the best results.

Hyperphoria.—This is often classed as not amenable to orthoptics. The only difference is that it is not so easy and it is sure to take more time and perseverance. Moderate amounts, which are far more common than large amounts, of hyperphoria can be satisfactorily remedied by prisms incorporated in the glasses worn by the patient. Large amounts can be remedied by operation, but orthoptics can help in all these cases since the patient has to learn and learns better under good instruction (skilful orthoptic technician) how to use his eyes under the existing conditions whether with or without glasses or surgery.

SUMMARY

Orthoptics is the art of teaching patients, children or adults, how to use their eyes properly. At birth the eyes, including the neuronic pathways involved in vision, are very imperfectly developed. As they grow anatomically they also develop physiologically. Some of this development is dependent on usage. Development may not progress in the normal or ideal way. Obstacles may turn the course of development into wrong channels. Skilful and understanding guidance by the orthoptic technician can lead the patient into the acquisition of more normal and useful habits or reflexes.

Thus the aim of the orthoptic technician is not the strengthening of some muscle or muscles alleged to be weak but is directed toward teaching the patient better control and coordination, better reflex response to his environment; hence the technician is greatly aided by understanding the physiology of vision and the psychology of teaching and of learning. Some apparatus, such as a major amblyscope, a stereoscope, prisms and various small accessories, are indispensable; but a lot of elaborate "automatic" machines will by no means take the place of intelligent skill under close supervision.

Glasses may help greatly, may be indispensable in some cases, but a surprising number can be taught to use their eyes without the glasses which they had been told were indispensable by some one not well informed on the subject of orthoptics.

Operation often saves much time and indeed makes some cases amenable to orthoptics that would be hopeless without surgery. Thus, refraction, orthoptics and surgery form a powerful team and should always work together.

Just as some surgeons are more skilful operators than others and some specialists are more skilful in measuring and treating errors of refraction and motility by glasses than others, so some orthoptic technicians are more skilful than others and should be allowed to spread the knowledge of their methods by advanced or graduate teaching. There is urgent need for opportunities for graduate individual instruction in orthoptics.

520 Commonwealth Avenue.

The Council on Physical Medicine has authorized publication of the following report.

Howard A. Carter, Secretary.

HANOVIA LUXOR "S" ULTRAVIOLET ALPINE LAMP ACCEPTABLE

Manufacturer: Hanovia Chemical & Mfg. Company, Newark 5, N. J.

The improved Luxor Professional Model "S" Alpine Lamp is the result of development in this field during the war. The burner itself is an improvement over the former burner in the lamp of the same name and model number, The Journal, May 20, 1939. It starts at the snap of the switch and requires no tilting. The mercury arc is established in a quartz tube between two solid electrodes of the activated type in a mercury vapor atmosphere of high pressure. The lamp develops the characteristic spectrum of a high pressure mercury arc. This lamp is designed to give a complete irradiation of one side of the body at one exposure. The time required according to the firm is thirty seconds on average untanned skin at 30 inches distance.

In a laboratory acceptable to the Council on Physical Medicine, the radiant and electrical characteristics were examined. The particular unit tested had the following data on the name plate on the housing of the control unit: Catalog No. S-2303-AS; Type 20504; Serial No. 1745. The tests consisted of radiometric measurements of the intensity of ultraviolet radiation, of wavelengths 3,132 angstroms and shorter, at a distance of 30 inches from the front surface of the burner, under controlled conditions.

To insure constant operating conditions the lamp was connected to a 120 volt, controlled alternating current supply. The radiation measurements were made by means of a balanced thermopile and filters in conjunction with a Thompson galvanometer. The apparatus was calibrated by use of a standard of radiation immediately after the observations on the sample. The observations were made with the burner in a horizontal position, with the reflector set symmetrically with respect to the horizontal plan.

The following results were obtained:

Line Voltage	Operating Current Amperes	Burner Current Amperes	*Lamp Output at 30 Inches* 3,132 Angstroms and Shorter
112.3	8,175	3.4	2,840 microwatts per square centimeter

Data on current and voltage were taken after a sufficient warm-up period to insure steady conditions. This amounted to at least fifteen minutes.

According to the report of the Council on Physical Medicine of the American Medical Association in The Journal, Jan. 27, 1940, pages 325 and 326, a minimum perceptible erythema is produced in fifteen minutes by 20 microwatts per square centimeter of radiation of 2,967 angstroms, or an equivalent of 58 microwatts per square centimeter of 3,132 angstroms and shorter from a high pressure hot quartz burner. According to these figures an output of 2,840 microwatts per square centimeter at 30 inches is sufficient to produce a minimum perceptible erythema in a little over eighteen seconds.

Actual measurements were made at only one position, but illumination of a large white screen set up directly in front of the lamp showed a remarkable uniform distribution in the radiation pattern.

The Council on Physical Medicine voted to include the Hanovia Luxor "S" Ultraviolet Alpine Lamp (Improved) in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 16, 1946

TEMPERATURE RECORDING FOR FEMALE FECUNDITY

van de Velde's observation as to the existence of variations in body temperature during phases of the menstrual cycle was cited in a previous editorial.[1] Rubenstein [2] correlated a study of vaginal smears with a study of basal temperature; he found that the basal rectal temperature tends to drop progressively during the phase of follicle development. The low point in the temperature curve is reached when the follicle matures. Barton and Wiesner [3] found in their studies of the temperature in several hundred women that the body temperature on waking in the morning varies in fecund women with the phases of the menstrual cycle. A relatively high temperature is characteristic of the premenstrual phase, and it persists after conception. Persistent low temperature excludes the diagnosis of pregnancy. The diphasic temperature cycle may persist in cases of amenorrhea, but more commonly amenorrhea is characterized by a monophasic waking temperature record. Certain types of infecundity are associated with absence of the high temperature phase. The transition from the low to the high temperature phase coincides with the ovulatory phase. The occurrence of this shift does not, however, constitute a proof of actual ovulation. The authors believe that the waking temperature record may also be employed in determining the "safe" postovulatory period when conception will not take place.

From the clinical experience of Barton and Wiesner a level of 99 F. or more sustained for more than sixteen days is characteristic of pregnancy. A level of 98.8 to 98.9 F. sustained for more than sixteen days is highly suggestive of pregnancy. They feel that the pregnancy test for chorionic hormone need not be carried out if the waking temperature is still at the low level or below 98.6 F., even though the period is much overdue. The diagnosis of pregnancy based on high waking temperature was in their experience correct in at least 97 per cent of cases. The diagnosis of nonpregnancy has not produced any errors in their experience so far. Sudden fall of the waking temperature after the high temperature has been maintained for sixteen days or more calls for immediate measures to counteract indicated miscarriage. These studies suggest that the waking temperature cycle is closely correlated with the ovarian cycle and that the thermal shift may be used as an indicator of ovulation but not as positive evidence of its actual occurrence. There is no convincing evidence that the waking temperature cycle depends directly on ovarian secretion and that in particular the high temperature phase is evoked by luteinization, with which it corresponds in time. The occurrence of a well defined diphasic cycle with a sustained high temperature phase supports the diagnosis of fecundity but does not establish it in any respect.

Halbrecht,[4] in his clinical study of the relation of ovarian function to body temperature, confirmed the view of van de Velde that the normal temperature curves of women of childbearing age are diphasic. The difference between the temperature level of the postmenstrual and the premenstrual phase seems to be more or less constant in the various cycles of the same woman. He feels that the basal temperature records offer a sufficiently reliable test to check the ovarian function and that this method may be helpful in the study of female sterility. Basal temperature records in his experience are also helpful in the early diagnosis of pregnancy and can be used to test the efficiency of hormone treatment of functional ovarian disorders. The advantage of the method is that it allows one to check the occurrence of ovulation in a large number of menstrual cycles. In an analysis of body temperatures recorded through 271 menstrual cycles by 130 patients suffering from sterility, he found that 238 of these cycles were diphasic and 33 monophasic. Endometrial biopsy was used to check 27 diphasic and 13 monophasic cycles. The same conclusions could be drawn about ovulation in all but 1 case. Of 40 cases of pregnancy, 37 showed a relatively high temperature level (98.6 to 99.3 F.) and in only 3 cases was there a low temperature level.

Thus medicine would seem to have available now a simple, reliable procedure for determining the time of various features of the menstrual cycle. The many applications of this technic in clinical practice will be readily apparent.

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[1] Basal Temperature and Date of Ovulation, editorial, J. A. M. A. **124:** 707 (March 11) 1944.

[2] Rubenstein, B. B.: The Vaginal Smear—Basal Body Temperature Technic and Its Application to the Study of Functional Sterility in Women, Endocrinology **27:** 843 (Dec.) 1940.

[3] Barton, Mary, and Wiesner, B. P.: Waking Temperature in Relation to Female Fecundity, Lancet **2:** 663 (Nov. 24) 1945.

[4] Halbrecht, I.: Ovarian Function and Body Temperature, Lancet **2:** 668 (Nov. 24) 1945.

THE TREATMENT OF PRIMARY POLYCYTHEMIA OR ERYTHREMIA

The treatment of primary polycythemia by repeated bleeding and the administration of hydrazine derivatives gives only temporary symptomatic relief by mechanically or chemically reducing the amount of the circulating blood or red cell mass. Radioactive phosphorus when obtainable is the treatment of choice at present. The development of more effective and rational therapeutic measures has been prevented by our ignorance of the causation of the disease. Recent experimental studies of Schafer[1] on the effects of the resection of the carotid sinus with the cardioaortic proprioceptive nerves and of the paravertebral sympathetic ganglions and nerves on vasotonus, blood pressure, oxygen metabolism and peripheral blood cell mass throw an interesting new light on the possible genesis of polycythemia and may open a new and promising avenue for its therapy.

Schafer observed that a polycythemic reaction, in addition to hypertension, developed in 40 per cent of dogs in which the carotid sinus and the cardioaortic proprioceptive nerves had been removed. The polycythemic response regressed in these dogs on subsequent complete paravertebral sympathectomy. However, following a proprioceptive depressor neurotomy in dogs previously subjected to a paravertebral sympathectomy and not infrequently showing vascular hypotension as the result of this operation, a polycythemic reaction ensued. The existence of a relation between the autonomic nervous system and the peripheral cell mass was thus established. Schafer applied this new relationship to the treatment of a patient with primary polycythemia. Following a total paravertebral sympathectomy a rapid drop in the number of erythrocytes to a normal level occurred and the associated untoward subjective and objective symptoms disappeared. Although the number of erythrocytes gradually increased again during the subsequent two years, the disabling symptoms did not recur, thereby permitting the patient to do prolonged and strenuous physical labor. Postoperative complications consisted of a temporary disturbance in the sweating mechanism of the denervated parts of the skin and of definite, but transitory, postural hypotension.

It is known that an anoxemic mechanism interfering with the oxygenation of the marrow is responsible for the development of the erythrocytes following a prolonged exposure to vasoactive agents such as epinephrine, amphetamine, ephedrine, posterior pituitary, lead, nitrates or cyanides, to agents and mechanisms impairing the proper oxygenation of the blood such as carbon monoxide, reduced atmospheric oxygen pressure, pulmonary fibrosis or tumors and cardiac anomalies, and to local interference with the blood supply to the marrow by arteriolosclerosis in this tissue. These observations support the concept that an imbalance of the vasomotor mechanism produced by a disturbance of the equilibrium of the depressor action of the carotid sinus and cardioaortic proprioceptive nerves and the pressor action of the sympathetic system may be responsible for the development of erythremia. Paravertebral sympathectomy would thus represent a logical therapeutic measure. The observations of Schafer are sufficiently well founded to warrant additional study of these problems.

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[1] Schafer, P. W.: The Etiology and Treatment of Polycythemia Vera Rubra, Ann. Surg. 122:1098 (Dec.) 1945.

PENICILLIN ADJUVANT IN VIRUS RESEARCH

In 1942 Hirst[1] of the International Health Division, Rockefeller Foundation, developed a method for the isolation of human influenza virus by direct inoculation of mouth washings into 13 day old chick embryos. The mouth washings were first passed through a collodion membrane so as to remove bacterial contaminations. Hirst found that so much of the virus is lost by collodion filtration as often to render the filtrate noninfectious. Rose and his associates[2] of Columbia University therefore tried to render filtration unnecessary by the use of chemical antiseptics. Preliminary experiments showed that most of the available antiseptics when used in concentrations that would prevent bacterial growth were either lethal for the chick embryo or would interfere with the development of the accompanying virus.

In order to find a more favorable antibiotic, Rose tested the bactericidal or bacteriostatic effects of penicillin when added to sputum. Fifty-five specimens of sputum from patients with respiratory tract infections were selected for this test. Fifty-three of them had bronchitis or pneumonia of bacterial etiology. Two patients had severe gingivostomatitis. The 55 specimens were thoroughly emulsified in an equal volume of nutrient broth followed by low speed centrifugation. The supernatant fluid from each specimen was then divided into 2 parts; to 1 of these 500-1,000 Oxford units of penicillin per cubic centimeter was added.

Forty-nine of the 55 chick embryos inoculated with the untreated supernatant fluid died as a result of bacterial contamination, while 47 of the embryos inoculated with sputum plus penicillin survived. All of the surviving embryos were found to be bacteriologically sterile. Herpes virus was isolated on first passage from embryos inoculated with penicillin-treated sputum from the 2 cases of gingivostomatitis. All eggs inoculated with untreated sputum from the same cases died within twenty-four hours, with failure to recover the virus.

By use of a similar technic Hirst[3] had previously reported 33 successful isolations of influenza virus from throat washings from 33 influenza patients. Untreated throat washings from the same patients led to only 17 positive isolations. Parallel inoculations of ferrets led to 30 positive immune responses. From these differences Hirst concluded that inoculations of the amniotic sac of chick embryos with penicillin (25 Oxford units per cubic centimeter) plus throat washings is the most effective of present day methods for the isolation of influenza virus.

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[1] Hirst, G. K.: J. Immunol. 45:293 (Dec.) 1942.

[2] Rose, H. M.; Molloy, E., and O'Neill, E.: Proc. Soc. Exper. Biol. & Med. 60:23, 1945.

[3] Hirst, G. K.: Proc. Soc. Exper. Biol. & Med. 58:155 (Feb.) 1945.

Use of penicillin in the isolation of viruses other than influenza and herpes has not yet been reported.

Current Comment

NO NEW MEDICAL DIRECTORY UNTIL 1947

Numerous inquiries are being received concerning the publication of a new edition of the American Medical Directory. Orders for the next (eighteenth) edition are not being accepted at this time; copies of the latest edition, published in 1942, are no longer available. One of the current problems in the Directory Department is the difficulty of keeping the records up to date regarding the relocations of the thousands of physicians being released from military service. Principally through the cooperation of the physicians themselves, the secretaries of county and state medical societies and the governmental agencies, considerable information is being received. About 20 per cent of the physicians are returning to their former office addresses or are obtaining new locations for practice, but the majority will first take refresher courses or serve residencies in hospitals. Every effort, nevertheless, is being made to obtain current information regarding all returning medical officers. Another problem that will delay the Directory is the shortage of necessary clerical help in our office and printing departments. Under ordinary circumstances, compilation and printing of a Directory require about twelve months. At present, however, it is doubtful whether a new Directory will be completed and ready for sale before the autumn of 1947. Medical officers particularly who read this comment and have not already notified the American Medical Association of their present location and status should do so at once, so that they may be correctly listed in the biographic files.

PENICILLIN THERAPY

The Pneumonia Technical Advisory Committee to the New York City Department of Health prepared a statement on the use of penicillin for distribution to physicians. Offered when the shortage of penicillin was at its peak, this statement was intended to cut waste of the drug so that more would be available to meet the rise in the incidence of respiratory disease. The committee warned against the use of penicillin for the prophylaxis and treatment of diseases for which it is obviously not intended, the continued treatment of patients long after any effective therapeutic benefit might be expected, and the use of oral preparations which require from three to six times the parenteral dosage and which are absorbed uncertainly from the gastrointestinal tract.

PROCUREMENT AND ASSIGNMENT QUOTAS APPLIED TO PHYSICIAN VETERANS

In its recent release on "Reconversion of the 9-9-9 Program" (The Journal, Nov. 24, 1945, p. 878) the relationship of physician veterans applying for residencies to the hospital house officer quotas assigned by the Procurement and Assignment Service was not entirely clear. Elsewhere in this issue there appears a statement by the Procurement and Assignment Service clarifying this matter. Veterans may be appointed to hospital residencies in excess of the quota of the hospital. They may remain outside the quota until they have become sufficiently trained to replace residents in that hospital who hold reserve commissions and are therefore eligible for active duty. Hospitals should attempt in this way to replace all residents holding commissions. At the time such replacement is complete the quota of that hospital will no longer be in effect. It should be emphasized again that physician veterans serving as residents need not be counted in hospital quotas initially. The Procurement and Assignment Service further announces that all quotas will be withdrawn from all hospitals on April 1, 1946.

A NEW ABSORBABLE SURGICAL DRESSING

A new absorbable material for use in neurologic surgery, suggested by Spitz and his associates,[1] is a casein fiber prepared from cow's milk and available under the trade name "Aralac." It is plentiful, inexpensive and uniform chemically. Aralac is readily spun into thread, forms an easily manipulated batting and can be repeatedly steam sterilized and stored indefinitely without deterioration. Pledgets of Aralac batting were inserted into the subcutaneous tissues, temporal muscle, subdural and subarachnoid spaces and the substance of the brain of a series of cats. None of the animals showed any ill effects from insertion of the casein fiber. Each was in good health at the termination of the experiment eleven to forty-six days later. At postmortem casein fiber was not visible grossly in any of the specimens. Microscopically small amounts of the fiber remained in 3 animals killed on or before the twelfth day. In cats which were allowed to survive twenty-three days or longer no trace of fiber remained. A few giant cells were found in the eleven day cats. At later stages the local reaction consisted chiefly of a slight fibrous tissue proliferation at or near the site of implantation. There was no evidence in any specimen that the casein fiber itself or any of its breakdown products was toxic to the cortical cells. The results therefore were as favorable as those previously reported from implantations of fibrin foam [2] or oxidized cotton.[3] More extensive studies of the absorbability of various types of plasticized sheets of casein are now in progress, with particular attention to the possibility of antibody formation. If bovine Aralac should prove to have undesirable antigenic properties, it is planned to try casein fiber from human milk.

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1. Spitz, E. B.; Ziff, M.; Brenner, C., and Davidson, C.: Science **102**: 621 (Dec. 14) 1945.
2. Ingraham, F D.; Bailey, O. T., and Nulsen, F. E.: J. Neurosurg. **1**: 171 (May) 1944.
3. Clark, H. E., and Kerns, K. R.: Science **95**: 536 (May 22) 1942.

MEDICINE AND THE WAR

Acc. No.
MEDICAL COLLEGE

MEDICAL SERVICE FOR VETERANS

ADDRESS BY COLONEL J. C. HARDING, DIRECTOR, OUTPATIENT SERVICE, VETERANS ADMINISTRATION, BEFORE THE CONFERENCE OF SECRETARIES AND EDITORS OF JOURNALS OF MEDICAL ASSOCIATIONS, CHICAGO, FRIDAY, FEBRUARY 8

Speaking as General Hawley's representative, I shall discuss some of the features of the medical program of the Veterans Administration, particularly as it relates to outpatient treatment and the securing of examinations for compensation and pension purposes. I should like to present to you some idea of the problems with which we are confronted and how we hope to solve those problems.

General Bradley, Administrator of Veterans Affairs, and General Hawley have gone on record many times to the effect that they are determined to provide for veterans the very best type of medical service obtainable. They realize that it was the complete cooperation of the civilian doctor, fitted into his proper sphere of interest and ability in the Army, that made our service to the G. I. outstanding in the field of military medicine and surgery. It is planned that this type of service will be continued in the Veterans Administration. The only difference will be that neither the doctor nor the patient will be in uniform.

As one means of accomplishing this, veterans' hospitals will be established in the vicinity of large medical centers. In this way we shall be able to obtain the services of leading members of the medical profession on a consultant basis. Arrangements already have been made with a number of medical schools which are located near Veterans Administration hospitals to utilize their faculties to augment and to improve the staffs at our veterans' hospitals.

Seventy-six of our existing ninety-seven veterans' hospitals are affected by this plan. Sixty of the seventy-five approved medical colleges in the country have expressed a desire to cooperate with the Veterans Administration in establishing high grade professional services in our veterans' hospitals. This can be accomplished, as far as consultants are concerned, by putting the consultants on a basis which will allow them to devote part of their time to veterans' hospitals in addition to engaging in private practice and teaching.

The medical colleges entering into this plan are requested to appoint a "Dean's Committee" to pass upon the qualifications for appointment of senior consultants, consultants or attending physicians and surgeons and ward officer residents.

Senior consultants now exist in most veterans' hospitals near medical centers. They are appointed from prominent men of the various specialties, and they act as supervisory consultants to the manager and the staff of the hospital. They will guide the teaching as well as the clinical service in the hospital.

Consultants or attending physicians or surgeons will be selected from discharged medical officers who are of a caliber to have held teaching positions in medical schools prior to their military service. They should be specialists certified by one of the examining boards. If they have not passed the second half of their board examination because of the entrance into military service, they may be recommended by the Dean's Committee on the basis of their past record. Consultants will be paid on a per visit basis. No two visits may be charged on the same day, and their compensation will not exceed $6,000, or an average monthly basis of $500. Their duties will be those expected of an attending physician in any university hospital.

Ward officer residents are to be selected at present from the ranks of discharged medical officers, whenever possible, by application to the Dean's Committee.

Men who have no credit toward board certification will be placed, on a rotating service, through all the subspecialties of medicine and surgery.

After their first complete rotation they will be allowed, wherever possible, to specify their preference as to a subspecialty. In veterans' hospitals these services can run as long as five years, one year of which will be in instruction in the basic sciences. Teaching institutions with which the veterans' hospitals are cooperating will be responsible for furnishing instruction in the basic sciences prescribed by various boards.

For many doctors who are in an older group and who have been in military service, credit will be given by the boards for certain work performed before and during the war.

MEDICAL SERVICES TO WHICH VETERANS ARE ENTITLED

While the plan which I have just sketched so briefly will raise the standards of treatment in veterans' hospital and will doubtless attract a considerable number of well qualified young physicians, it will not meet the immediate needs of the Veterans Administration in providing all the medical services to which veterans are entitled. At this time I will describe those services at a little greater length.

First, under existing law veterans who are not discharged from service under dishonorable conditions are entitled to hospital care in veterans' hospitals and other government hospitals with which the Veterans Administration has an agreement for the treatment of any disease or injury for which hospital care is indicated. Veterans in need of treatment for non-service connected disabilities are required to make a sworn statement that they are unable to defray their own hospital expenses.

Second, male veterans may also be hospitalized in private or contract hospitals for the treatment of service connected disabilities if government facilities are not available or their physical condition precludes travel to a veterans' hospital.

Third, female veterans, in addition to entitlement to hospital care in veterans' hospitals, may be admitted to private or contract hospitals, both for service connected and non-service connected conditions, if government facilities are not readily available.

THREE MAJOR PROBLEMS

The Veterans Administration, as far as the Office of the Chief Medical Director is concerned, is faced with three major problems. Problem number one is lack of professional personnel. Problem number two is lack of hospital beds. Problem number three is our tremendous outpatient examination and treatment load. A few figures will make the picture clear. At the present time the Veterans Administration has approximately 2,100 physicians on duty and there is a shortage of an equal number to take care of the present load. It is estimated that we should have at least 5,000 physicians to take care of the work in 1947.

The Veterans Administration is operating ninety-seven hospitals and, in addition, has in excess of 8,000 patients hospitalized in other government or civilian hospitals.

As of Jan. 24, 1946 there were over 72,000 patients in veterans' hospitals, of whom 48,000 were receiving hospital care for non-service connected disabilities.

The standard bed capacity of veterans' hospitals is in the neighborhood of 72,000 beds. Authorization has been received to increase this capacity by approximately 50,000 beds, of which 10,000 are now under construction. We also anticipate securing approximately 20,000 beds in army and navy hospitals.

In addition to our own building program, it is the hope of the Veterans Administration that arrangements may be made whereby private hospitals throughout the United States will hospitalize a larger number, perhaps 20,000 veterans, in their own hospitals on a contractual basis.

Many administrative problems will have to be solved so that hospitals will receive prompt and adequate reimbursement for the care which they give our patients. There is no doubt, however, that some sort of satisfactory formula can be worked out. We all realize that the operating costs of hospitals vary, sometimes to a large extent, even though the general service is approximately the same.

OUTPATIENT EXAMINATION AND TREATMENT LOAD

I have spoken of the three major problems in the Veterans Administration. I said that problem number three was our tremendous examination and treatment load of outpatients. As director of the outpatient service, I should like to give an idea of the magnitude of the work involved as well as the nature of some of the problems with which we are confronted. Under existing law a veteran is entitled to outpatient treatment for any disease or injury which was incurred in line of duty and which resulted in his discharge from service, and for the relief of any disease or injury which has been adjudicated as incurred in or aggravated by service.

During the year 1945 over 800,000 treatments were rendered on an outpatient basis; 593,000 of these treatments were rendered to veterans of World War I and 214,000 to veterans of World War II. When it is realized that there will be over 12 million veterans of World War II out of service by June 1946, the amount of work involved in handling the outpatient load alone can be readily appreciated.

In addition to rendering outpatient treatment, the outpatient service is responsible for conducting examinations of veterans filing claims for pension purposes. It is estimated that for the fiscal year 1947 2,121,000 veterans will require examinations for pension purposes. To meet this load, in addition to conducting examinations for other than pension purposes such as examinations to determine the need for hospital care, examinations for insurance purposes and civil service retirement it is estimated that we shall require the service of more than 3,000 full time physicians. It is self evident that this number of physicians will not be available. Consequently the Veterans Administration must rely on the medical profession throughout the country to help us in meeting our obligations to returned ex-service men and women. The medical profession has responded splendidly to General Hawley's appeal in this respect.

For a number of years the Veterans Administration has utilized the services of civilian physicians on a fee basis in conducting examinations for pension and compensation purposes and in rendering outpatient treatments for service connected disabilities. It has been realized for some time that the schedule of fees under which we were operating was inadequate, as it had not been revised for a number of years. Shortly after General Hawley assumed charge of the medical department I suggested that he appoint a committee to study and revise the fee schedule. The General felt, however, that he did not wish to establish any fixed schedule of fees on a national scale but rather to pay fees agreed on with various medical societies which were considered fair and equitable in the communities concerned. In accordance with this policy an agreement was reached with the District of Columbia Medical Society as to the fees to be paid in Washington for examinations, including those of the various specialties, for compensation and pension purposes. About this time, that is in October 1945, representatives of the Monmouth County of New Jersey Medical Society attended a conference in General Hawley's office, at which time an agreement was reached for the care of veterans in Monmouth County. The Monmouth County Plan was placed on a trial basis for a period of ninety days, at the end of which time recommendations were made by the society as to what action should be taken in ironing out the problems and difficulties encountered.

The chief problem encountered by the Monmouth Medical Society in rendering prompt and adequate service to veterans was the delay on the part of the Veterans Administration in making a determination as to the entitlement of veterans to treatment on an outpatient basis. For instance, out of 226 veterans reporting to the Monmouth County clinics during the period from Nov. 9, 1945 to Jan. 25, 1946, definite action had been taken by the Veterans Administration on only 102 cases. This falls far short of the goal which we hoped to attain.

As I stated previously, a veteran is entitled to outpatient treatment for any condition which was incurred in line of duty and which resulted in his discharge from service or for the treatment of any condition which subsequent to his discharge has been adjudicated as incurred in or aggravated by service. Veterans medically surveyed from service because of disability incurred in line of duty do not present any problem, as their claims can be adjudicated on the basis of the medical or hospital report within a short time. However, veterans who have been discharged from service on points and who subsequently apply for outpatient treatment have been required in many instances to wait several weeks or even months before a determination was made as to their entitlement to outpatient treatment. I feel sure that we finally have overcome this major problem, which has been the cause of justifiable criticism throughout the whole country. On the basis of an opinion obtained from our solicitor, a directive has been released within the past few days which permits chief medical officers and their designates to make a tentative determination that the condition for which the veteran is requesting treatment is in all probability due to service on the basis of prima facie evidence, including any service records available and the veteran's sworn statement as to the origin and history of the condition for which he is requesting treatment. Under this directive, chief medical officers and their designates can thus authorize outpatient treatment and emergency hospitalization in private or contract hospitals if in their opinion there is a reasonable probability that the veteran's disability was incurred in or aggravated by service.

While the Monmouth County Plan has been working very satisfactorily, it can readily be appreciated that as there are over three thousand counties in the United States it would be far better, from an administrative standpoint, to work out agreements with state medical societies which would be applicable throughout the entire number of states concerned. We have accordingly made agreements with the Kansas State Medical Society, with the Michigan State Medical Society and the Michigan Medical Service of Detroit, the California Physicians Service of San Francisco and the Medical Service Administration of New Jersey for the furnishing of medical services to veterans. We have also had contacts with many other state medical soceties, including those of Massachusetts, New York, Pennsylvania, West Virginia, North Carolina, Illinois, Missouri and Colorado. As the Kansas plan differs materially from the plans of Michigan, California and New Jersey, it should be of interest to become acquainted with its provisions as well as the law of Michigan, which is practically identical to the plans of California and New Jersey.

The Kansas plan reads as follows:

1. The Kansas State Medical Society will submit a list of its members who desire to do work for the Veterans Administration in accordance with the schedule of fees (approved by the Veterans Administration) in relation to examinations, office, outpatient care and hospital care.

2. The Kansas State Medical Society will furnish to the Veterans Administration a list of the physicians who are competent to do such work in their respective fields. On the basis of these lists, which will be submitted to the manager of the Wichita Veterans Center and which will be augmented from

time to time, members of the society will be appointed as fee designated Veterans Administration physicians.

3. The Kansas State Medical Society proposes to zone the state in order that the nearest qualified physician may be called upon to render the medical service.

4. The Veterans Administration will establish an office adjacent to the office of the Kansas State Medical Society in Topeka, which office will be staffed with a full time or part time Veterans Administration physician and adequate clerical personnel to handle the administrative work. It will be the function of the Veterans Administration physician to authorize outpatient examination and treatments (inpatient and outpatient) and to arrange for the necessary transportation of the veteran. The Veterans Administration physician will review reports of examinations and reports of treatments rendered to determine their adequacy and will return those deemed inadequate to a board of physicians appointed by the Kansas State Medical Society for indicated action. No fees will be paid for examinations or reports which are not acceptable to the Veterans Administration. It shall be the duty of the board appointed by the Kansas State Medical Society to recommend the disqualification of any physician from further work with the Veterans Administration whose work is incomplete or unsatisfactory at the discretion of the board.

5. The Kansas State Medical Society does not propose to make any charge for any service rendered to the Veterans Administration in connection with the supervision of the work performed by its members. It is the purpose of the Kansas State Medical Society in collaboration with the Veterans Administration to render the best possible medical service to veterans in the state of Kansas.

The Michigan contract reads as follows:

1. The Michigan Medical Service will arrange, through physicians registered with it for the rendition of the medical services covered by this agreement, for examinations, treatments and counsel in such cases as may be authorized by the Veterans Administration, Michigan Medical Service reserving the right, however, to decline any particular case.

2. The Veterans Administration will authorize examinations, treatments and counsel. Authorizations for such services will be issued to the Michigan Medical Service; the Michigan Medical Service will advise the veteran to report to a physician of the veteran's selection in his community, such selection to be limited to those physicians registered with Michigan Medical Service for the rendition of services under this agreement.

3. The Michigan Medical Service will be responsible for seeing that reports required by the Veterans Administration are in proper form and that proper records are maintained which will be available for review by the Veterans Administration at any time. The Veterans Administration will review reports of services and will return to Michigan Medical Service for further action, without additional cost to the Veterans Administration, those which do not meet the requirements of the Veterans Administration.

4. Fees for medical services will be in accordance with the fee schedule, which is attached and made a part of the contract. It is understood that unusually involved cases and services not scheduled will be subject to review and recommendation by Michigan Medical Service to the Veterans Administration for determination of appropriate fee.

5. The Michigan Medical Service will make payment to the individual physicians for services rendered in all cases in which authorizations have been issued and will in turn bill the Veterans Administration at the end of each month. The Veterans Administration will remit in accordance with such bill within a reasonable time after receipt thereof.

6. The Michigan Medical Service contemplates that the performance of this contract will be without profit to it, and, if operating results are at variance with this intention, revisions will be proposed to produce such a nonprofit operation.

It will be noted that the essential difference in the plans of Kansas and Michigan is that, in Kansas, members of the Kansas State Medical Society will be appointed as fee designated physicians and the Veterans Administration will pay the physicians direct for services rendered, whereas under the Michigan plan the physicians will be paid by Michigan Medical Service, and they in turn will bill the Veterans Administration at rates in accordance with the schedule of fees agreed on.

As the Michigan Medical Service contract was the first of its kind to be negotiated, certain legal difficulties arose which required considerable time to straighten out. I feel sure that the contract is workable and that it will go a long way toward solving our problem in furnishing outpatient medical service to veterans. I should like to see a plan similar to it placed into effect in as many other states as possible.

Under this contract the veteran is permitted, with some limitations, to select his own physician. It is believed that this will have a good psychologic effect on the veteran in that he will have more confidence in the physician he selects to treat his case than he would in a physician to whom he might be ordered to report for examination or treatment and who, in all probability, would be a total stranger to him.

While certain problems and difficulties will no doubt arise in the administration of this plan or any other plans which we may adopt, I am certain that, with the cooperation already manifested by the various medical societies these problems can be overcome.

It is only through cooperation of this sort that the goal in which we are all interested can most quickly be reached. That goal is to provide for sick or disabled veterans the very best medical treatment and care and the most up to date medical service that it is possible to obtain.

VETERANS

CONSULTANTS NAMED FOR VETERANS' HOSPITALS

Eleven physicians were recently appointed to serve as consultants to the veterans' hospitals by Major Gen. Paul R. Hawley, Acting Surgeon General of the Veterans Administration.

Brig. Gen. Elliott C. Cutler, professor of surgery, Harvard Medical School, and also attached to the Peter Bent Brigham Hospital, Boston, headed the list. Other consultants are:

Lieut. Col. Brian B. Blades, Washington, D. C., chest surgery.

Col. Barrett Brown, Phoenixville, Pa., plastic surgery.

Dr. Trygve Gunderson, Brookline, Mass., diseases of the eye.

Lieut. Col. Aubrey Hampton, Washington, D. C., formerly of Harvard Medical School, Boston, radiology.

Dr. Bernard J. Pisani, New York, gynecology.

Dr. Donald M. Pillsbury, Philadelphia, assistant professor at the Jefferson Medical College and University of Pennsylvania School of Medicine, Philadelphia, skin diseases.

Dr. John N. Robinson, Sharon, Conn., urology.

Col. Roy Glenwood Spurling, Washington, D. C., neurosurgery.

Dr. Ralph Tovell, Hartford, Conn., anesthesiology.

Dr. Robert M. Zolliner, Boston, assistant professor, Harvard Medical School, general surgery.

Consultants now attached with the Army's Medical Corps will serve without pay until they have been released from active duty.

APPOINTMENT AS CONSULTANT FOR MEDICAL CARE OF WOMEN VETERANS

Lieut. Col. Margaret D. Craighill, Philadelphia, was recently appointed consultant for the medical care of women veterans. She is on leave from the Women's Medical College of Pennsylvania in Philadelphia, where she was dean. Dr. Craighill graduated from Johns Hopkins University School of Medicine, Baltimore, in 1924 and entered the service May 28, 1943.

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

RECONVERSION OF 9-9-9 PROGRAM

Inquiries about paragraph 3 of section III of directive number 382 (Nov. 6, 1945), relating to the circumstances under which hospitals may exceed quotas, have prompted the following further explanation:

Veterans should be accepted for residencies in hospitals without being counted in the resident quota until they are sufficiently trained to replace a commissioned officer satisfactorily. When a veteran is sufficiently trained to replace a commissioned officer, the officer should be released for active duty at once and at that time the veteran on duty should be counted in the quota. When an institution has thus replaced its last commissioned officer, all quota restrictions are withdrawn as to that institution.

For example, if a hospital has a quota of twelve residencies, six of which are filled by commissioned officers and six of which are filled by women or men who are ineligible for military service, and six veterans beyond the quota, it is expected that, when one of the veterans becomes sufficiently trained so that he can assume the duties of assistant resident in medicine (and there is a commissioned officer filling a position as assistant resident in medicine), the commissioned officer should be released for active duty and the veteran counted in the quota at that time. The hospital will then have five veterans who are not counted in the quota and twelve residents who are counted in the quota, five of whom will still be commissioned officers. This replacement program should continue as rapidly as possible between now and April 1, 1946 until the last commissioned officer has been replaced, at which time the hospital is no longer under any quota regulations.

It should be obvious to every hospital superintendent and medical director that the quicker he makes use of such veterans the more stable will be his staff and the sooner he can return to his peacetime resident program.

PROCUREMENT AND ASSIGNMENT SERVICE RESIDENT QUOTAS

The Procurement and Assignment Service will withdraw the resident quota restrictions on each hospital on the date on which that hospital releases its last commissioned resident and will withdraw all quotas from other hospitals on April 1, 1946.

PROCUREMENT AND ASSIGNMENT SERVICE INTERN QUOTAS

No hospital should accept for internships beginning April 1, 1946 more interns from the senior class graduating in March 1946 than their present intern quota. This rule holds for those hospitals which have 100 per cent of their interns on a July to April term. If the hospital has interns who started their internships after July 1, 1945 they should discount them from their quota and fill the remainder of their quota with March graduates. After April 1, 1946 Procurement and Assignment Service intern quotas may be disregarded.

ARMY

ARMY AWARDS AND COMMENDATIONS

Colonel Howard A. Rusk

The Distinguished Service Medal was recently awarded to Col. Howard A. Rusk, formerly of St. Louis. The citation accompanying the award states that "Col. Howard A. Rush, Medical Corps, from March 1943 to October 1945 bore the heavy responsibilities of chief of convalescent and rehabilitation branch, Professional Services Division, and chief of the convalescent services division, Office of the Air Surgeon, Given the difficult assignment of pioneering the organization of a convalescent services program in each Army Air Forces hospital, he instituted procedures for physical reconditioning and educational training which utilized previously wasted convalescent time. The results of this far reaching program were extraordinarily successful. Hospital readmissions dwindled, the period of convalescence was shortened, sick leaves were reduced, the military and general knowledge and skills of the patients was increased and tremendous improvement of morale in the hospitalized men was noted. The outgrowth of Colonel Rusk's program was the Air Forces plan for the rehabilitation and convalescent care for returning overseas casualties. Through great vision, superior organizational ability and wide experience gained in the practical application of his theories, Colonel Rusk accomplished a task which benefited thousands of soldiers and contributed in important measure to the success of the Army Air Forces' vast medical program." Dr. Rusk graduated from the University of Pennsylvania School of Medicine, Philadelphia, in 1925 and entered the service Aug. 18, 1942.

Brigadier General Henry C. Dooling

The Legion of Merit was recently presented to Brig. Gen. Henry C. Dooling, surgeon, Caribbean Defense Command and chief health officer, Panama Canal. The citation accompanying the award said, in part, "Despite greatly increased difficulties due to the growth of population, troop concentrations, the passage of large contingents of military forces through the canal and wartime conditions affecting supply, he maintained high health standards. By his great professional skill, tireless energy and sound judgment General Dooling contributed in important measure to the successful performance of the Panama Canal's war mission." Dr. Dooling graduated from the Medico-Chirurgical College of Philadelphia in 1908 and entered the service Sept. 18, 1917.

MEDICAL ACTIVITIES MOVED TO FORT SAM HOUSTON

Major Gen. Norman T. Kirk, Surgeon General of the Army, recently announced that a move involving approximately 6,000 enlisted men and officers will be completed by March 15, when medical activities of Carlisle Barracks, Pa., and the Medical Section and certain portions of the basic training program at the Army Service Forces Training Center, Fort Lewis, Washington, will be transferred to Fort Sam Houston, Texas.

The concentration of the medical department schools and courses at this new center will represent a saving in the transportation of trainees from one school to another in many cases and also will result in more economical and effective operation of the training program, according to Col. Floyd L. Wergeland, director of the Education and Training Division of the Surgeon General's Office.

Plans are being made for five battalions which will train about 5,000 men in basic and technician courses at Fort Sam Houston. A basic medical department officers' course of approximately 1,100 newly commissioned officers will be in continuous operation, Colonel Wergeland said.

The basic training will require six weeks and the basic technicians' course will take another seven weeks, making a total of thirteen weeks. The technician schools include courses of eight to sixteen weeks for dental, laboratory, x-ray, surgical and medical technicians. There will be common specialist courses for cooks and bakers, chauffeurs, clerks, auto mechanics and sanitary technicians.

There will be a School of Military Neuropsychiatry and a School of Roentgenology and Medical Equipment Maintenance Technician courses. Residency type training for Medical Corps officers will be carried on at Brooke General Hospital, Fort Sam Houston, and also at nine other general hospitals in this country as part of the Surgeon General's plan to provide greater opportunities for professional advancement to the members of the Army Medical Corps.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Arizona

Herzberg, Benjamin, Major, Professional Bldg., Phoenix.
Kohl, Harold W., Col., 100 E. Sierra Vista Dr., Tucson.
Lewis, Joel E., Capt., 1243 E. Monroe St., Phoenix.
Mandel, Meyer M., Capt., 4 E. Congress St., Tucson.
Palmer, Maxwell R., Capt., 2230 E. Hawthorne, Tucson.
Tucker, William P., Major, Florence.
Warrenburg, Clarence B., Major, 313 W. Lewis St., Phoenix.

California

Allen, Carlton S., Lt. Col., 140 Palm Court Dr., Santa Maria.
Anderson, Stanley B., Lt. Col., 1360 Virginia Ave., Glendale.
Bartlett, John C., Capt., 867 Arlington Ave., Berkeley.
Beil, Martin C., Lt. Col., Upper Lake.
Carpenter, Eugene, Capt., 5165 Fountain, Los Angeles.
Christopherson, Einor H., Lt. Col., San Diego.
Clegg, John G., Capt., 1919 Wilshire Blvd., Los Angeles.
Colm, Cyrenus L., Capt., Durham.
Evans, Edward R., Capt., 934 E. Broadway, San Gabriel.
Francis, Kenneth V., Capt., 99 S. 9th, San Jose.
Gates, Francis K., Capt., 520 S. Granada Ave., El Monte.
Hill, Lowell I., Capt., 1414 S. Hope St., Los Angeles.
Hodgin, Robert I., Major, 152 N. Mariposa, Los Angeles.
Holaday, David D., Capt., 2019 Notre Dame, Belmont.
Ireland, Robert M., Capt., 3406 W. Washington, Los Angeles.
King, Robert W., Capt., 210 S. 1st St., San Jose.
Lunsford, William B., Capt., 11738 Chenault, West Los Angeles.
McClellan, Jay H., Lt. Col., Vet. Hosp., West Los Angeles.
Meyer, Hans A., Capt., 45 McLaren Ave., San Francisco.
Miyauchi, Yukio, Capt., 610 W. Main St., Santa Maria.
Mohun, Charles C., Capt., 101 Maple St., San Francisco.
Olson, Frederick A., Capt., 7th Main, Fortuna.
Pinger, Robert R., Lt. Col., 2650 Willow Pass Rd., Concord.
Ryan, Andrew M., Major, 67 Clifford Terrace, San Francisco.
Schaumloffel, R. A., Capt., 312 N. Boyle Ave., Los Angeles.
Sorenson, Einer I., Major, 65 N. Madison Ave., Pasadena.
Stein, Gerald B., Capt, 2200 Post St., San Francisco.
Weinberg, S. L., Major, 6253 Hollywood Blvd., Los Angeles.
Wilson, Harris R., Capt., 820 Magnolia St., Modesta.

Connecticut

Birney, Thomas P., Capt., 18 Seaview Ave., Milford.
Bishop, Courtney C., Major, 9 Austin St., New Haven.
Bodie, William J., Major, 146 Montowese St., Branford.
Carter, George G., Lt. Col., 29 Hillside Dr., Greenwich.
Castagno, Rowe A., Capt., 225 Ward St., Hartford.
D'Esopo, Joseph N., Major, 892 Campbell Ave., West Haven.
Goodrich, William, Capt., 3120 Fairfield Ave., Bridgeport.
Johnson, Wilbur D., Major, 215 Whitney Ave., New Haven.
Kelsey, Weston M., 1st Lt., 160 Myrtle Ave., Westport.
Martin, Edward, Capt., 102 Prospect St., New Britain.
Mazzacane, James E., Capt., 66 Concord St., Hamden.
Mott, Frederick E., Capt., 75 Westwood Rd., N. Haven.
Post, Frederick A., 1st Lt., 717 Howard Ave., New Haven.
Pyrtek, Ludwig J., Capt., 2 Myrtle St., Hartford.
Rourke, Thomas A., Capt., 59 Church St., Greenwich.
Sterrett, Raymond A., Capt., % J. E. Sterrett, New Canaan.
Strayer, Luther M. Jr., Capt., Lordship Rd., Stratford.
Taffel, Max, Major. 789 Howard Ave., New Haven.
Wallman, Lester J., Capt., 82 North St., Stamford.
Weinerman, Edwin R., Capt., 127 Warrenton Ave., Hartford.
Yebovitz, Myer, Capt., Danbury Hosp., Danbury.
Zariphes, Constantine, Capt., 98 Main St., Hartford.

Delaware

Comegys, Richard W., Capt., Clayton.
Flinn, Irvine M. Jr., Major, RD 3, Newark.
Gluckman, Albert G., Capt., 401 W. 20th St., Wilmington.
Mac Fadyen, Douglas A., Major, Wilmington.
Resnick, Elton, Capt., 728 Saville Ave., Wilmington.
Schinfeld, Louis H., Lt. Col., 1039 Pine St., Wilmington.
Taylor, Harry, Major, 5 S. Union St., Wilmington.

Illinois

Allen, John B., 1st Lt., 1835 W. Harrison St., Chicago.
Alsberg, Curt, Major, 5616 Glenwood Ave., Chicago.
Bell, Charles E., Lt. Col., 8630 W. Main St., Belleville.
Blustein, Herman, Capt., 2738 W. Madison St., Chicago.
Branch, Charles D., Lt. Col., 331 Fulton St., Peoria.
Castro, Cosimo, Capt., 6836 Oleander Ave., Chicago.
Chwatal, Herbert F., Lt. Col., 8934 S. Hermitage Ave., Chicago.
Conley, John A., Capt., 113 Van Buren St., Woodstock.
Cooperman, Norman R., Capt., 5528 Hyde Park, Chicago.

Illinois—Continued

Cunningham, James T., Major, 1509 E. Cook St., Springfield.
Curtis, John S., Capt., 103 W. Harrison St., Danville.
De Weerd, James H., Major, 3532 S. California Ave., Chicago
Druce, Sidney, 1st Lt., 5541 Everett Ave., Chicago.
Egan, Edward M., Major, 1 LeMoyne Parkway, Oak Park.
Faulkner, Harry L., Lt. Col., 2051 Sedgwick St., Chicago.
Frazier, Elijah S., Capt., Effingham.
Freedman, Adio A., Major, 5816 Kenmore Ave., Chicago.
Goforth, Eugene G., Capt., 905 S. Main St., Bloomington.
Goldberg, Aaron L., Capt., 1153 N. Spaulding Ave., Chicago.
Greenburg, Benjamin J., Capt., 2450 N. Kedzie Blvd., Chicago.
Greenspon, Louis I., Capt., 1601 Halsted St., Chicago Heights
Haver, Harry T., Major, 5920 N. Kenneth Ave., Chicago.
Hess, Edmond R., Capt., 1458 Elmdale Ave., Chicago.
Janus, Arthur I., Capt., 4301 W. Adams St., Chicago.
J[illegible]ld, Maurice H., Capt., Elizabethtown.
Karolus, Herbert E., Major, Warren.
Kavka, Selig J., Capt., 1335 Independence Blvd., Chicago.
Krause, Leonard S., Capt., 1867 S. Avers Ave., Chicago.
Kulvin, Max M., Major, 5110 Kenwood Ave., Chicago.
Lauer, David P., Major, 638 Arlington Pl., Chicago.
Levin, Harry, Capt., 6365 Broadway, Chicago.
Livingston, A. E., Lt. Col., 608 Lafayette Apts., Bloomington.
Mackler, Saul A., Capt., 1540 Lake Shore Dr., Chicago.
McMillan, Robert G., Major, 122 S. Michigan Ave., Chicago.
Mason, Michael L., Col., 916 Castlewood Terrace, Chicago.
Matthews, Henry B., Capt., 426 E. 51st St., Chicago.
Meyer, George E., Capt., 1001 E. Monroe, Belleville.
Michaels, Edward R., Capt., 6624 S. Albany Ave., Chicago.
Miller, Robert E., Capt., 1420 N. 42d St., East St. Louis.
Millis, Jack W., Major, 3501 N. Leavitt St., Chicago.
Movius, Alfred H. Jr., Capt., 105 N. Oak Park Ave., Oak Park.
Munn, Alfred A., Capt., 49 E. Oak St., Chicago.
O'Hearn, James J., Capt., 5308 W. Adams St., Chicago.
Pava, Charles, 1st Lt., 1245 S. Sawyer Ave., Chicago.
Pickett, William J., Lt. Col., 7301 Clyde Ave., Chicago.
Priest, Robert E., Major, 4344 Grand Ave., Western Springs.
Reitman, Paul H., Capt., 1306 N. Astor St., Chicago.
Richter, Harry M., Capt., 1031 E. 48th St., Chicago.
Schrey, Edward L., Capt., 1835 W. Harrison St., Chicago.
Schwartz, N. F., Capt., 5733 W. Washington Blvd., Chicago.
Sutton, Charles F., Major, Chillicothe.
Swigert, Verne W., Capt., 2215 Ridge Ave., Evanston.
Szewczyk, Thaddeus S., Capt., 612 Summit Ave., E. St. Louis.
Timberlake, Harold P., Lt. Col., Vet. Adm., Hines.
Trotter, Jay D., Major, 53 S. Adams, Carthage.
Vicari, Frank A., Capt., 2444 W. 35th St., Chicago.
Wall, John C., Capt., 7730 Constance Ave., Chicago.
Werbel, Ernest W., Major, Cook County Hosp., Chicago.
Wilson, Hugh, 1st Lt., 4700 Kenwood Ave., Chicago.
Wormley, Gordon W., 1st Lt., 2208 Cumberland St., Rockford.
Younan, Thomas, Capt., 710 Oakdale, Chicago.
Young, Tommy R., Lt. Col., 512 Market St., Mt. Carmel.

Indiana

Aagesen, W. J., Lt. Col., 627 Citizens Bank Bldg., Anderson.
Brill, William I., Major, 1919 N. Meridian St., Indianapolis.
Callaghan, Winship C., Major, 510 N. Lincoln St., Greensburg.
Childs, Wallace E., Major, 603 S. Main St., Princeton.
Daves, William L., Major, 708 College Highway, Evansville.
Dean, Donald I., Capt., 310 E. 5th St., Rushville.
Gossard, Meredith B., Capt., Kempton.
Helper, Morton, Major, 511 S.E. 1st St., Evansville.
Horsman, Russell K, Capt., Miami.
Jobes, James E., Lt. Col., 4265 Knowllton Rd., Indianapolis.
Kuhn, Robert W., Lt. Col., Indianapolis City Hosp., Indianapolis.
Lapid, Gilbert G., Capt., 4712 Magoun Ave., East Chicago.
Ling, John F., Capt., I. U. Med. Center, Indianapolis.
Loudermilk, Jack L., Capt., RR 17, Box 276, Indianapolis.
McConnell, William C., Capt., Sunman.
Merrell, Basil M., Major, Brownstown.
Pence, Benjamin F., Major, 108 N. Chancey St., Columbia City.
Pentecost, Paul S., Major, Abington Pike, Richmond.
Rotman, Harry G., Capt., 220 N. Park, Jasonville.
Ruff, Carl H., Capt., 216 E. Lincolnway, LaPorte.
Schneider, Charles P., Capt., 2924 W. Md. St., Evansville.
Spivey, Russell J., Major, 3907 N. Delaware St., Indianapolis.
Stafford, William C., Capt., 107 W. Main St., Plainfield.
Stoen, Harold J., Capt., 833 Shawnee Ave., Lafayette.
Ware, James R., Capt., Andrews.
Wayne, Charles M., Lt. Col., 518 S. 5th Ave., Maywood.
Zwerner, Paul F., Capt., 2120 N. 10th St., Terre Haute.

PHYSICIANS SEPARATED FROM SERVICE

Iowa

Anderson, John L., Major, Osceola.
Dulmes, Abraham H., Capt., Klemme.
Eastburn, Harvey B., Capt., 819 River St., Iowa City.
Emanuel, Dennis G., Capt., 902 Newton Rd., Iowa City.
Flickinger, Roger R., Capt., Park Hosp. Clinic, Mason City.
Greenblatt, Jerald, Capt., University Hosp., Iowa City.
Griffith, William O., Capt., Shelby.
Honke, Edward M., Major, 504 Davidson Bldg., Sioux City.
King, Henry A., Major, 115 Jefferson St., New Iberia.
Lemon, Kenneth M., Capt., 515 2d Ave., East Oskaloosa.
Lohmann, Carl J., Lt. Col., 700 Oak St., Burlington.
Moen, Stanley T., Lt. Col., Hartley.
Neu, Harold N., Lt. Col., 1002 Schaller, Sac City.
Pederson, Thomas E., Capt., 2030 Highland Park, Fort Dodge.
Priestley, J. B., Lt. Col., 3833 Greenwood Dr., Des Moines.
Pumphrey, Loira C., Major, 111 Masonic Temple, Keokuk.
Purdy, William O., Major, 1608 Equitable Bldg., Des Moines.
Reiley, Richard E., Major, 915 1st Ave. E., Oskaloosa.
Riedesel, Elmer V., Major, Wheatland.
Rohlf, Edward L., Major, 705 Waterloo Bldg., Waterloo.
Rominger, Clark R., Capt., 202 Lincoln Ave., Waukon.
Rotkow, Maurice J., Capt., 3518 Kingman Blvd., Des Moines.
Scharnweber, Henry C., Capt., 1112 Union St., Boone.
Shepherd, Loyd K., Major, 1424 Locust St., Des Moines.
Simpson, Frederic E., Major, St. Univ. Hosp., Iowa City.
Steffens, Lincoln F., Lt. Col., 1200 Main St., Dubuque.
Sywassink, George A., Lt. Col., 210 Parkington Dr., Muscatine.
Weinberg, Harry B., Major, 2508 Harrison, Davenport.
Weir, Don C., Lt. Col., Griswold.

Kansas

Armstrong, Carroll W., Capt., 135½ N. Santa Fe, Salina.
Bernstorf, Philip W., Capt., 408 N. Fountain, Wichita.
Brewer, William M., Major, 401 W. 6th St., Hays.
Bula, Ralph E., Capt., 532 S. Workman, Lyons.
Cooper, Laurence L., Capt., RR 5, Ft. Scott.
Hill, Edwin R. Jr., Major, Lyons.
Kempthorne, Charles R., Capt., 1849 Fairchild, Manhattan.
Kirkham, Judd H., Lt. Col., Apt. 8 N., U. S. V. A., Wichita.
McKee, Leo F., Capt., 4456 Francis St., Kansas City.
McKee, Richard S., Major, 1210 S. Broadway, Leavenworth.
Marietta, John S., Capt., 760 S. Santa Fe, Salina.
Owens, Guv E., Capt., 520 1st St., Lenexa.
Powers, Harold W., Major, 1819 Westwood Circle, Topeka.
Pusitz, Manuel E., Major, 1434 Campbell St., Topeka.
Raines, Omar M., Major, 1551 Lakeside Dr., Topeka.
Rieke, Frank A., Capt., St. Margaret's Hosp., Kansas City.
Samuelson, E. A., Capt., 3833 Rainbow Blvd., Kansas City.
Simpson, Ronald A., 1st Lt., 307 W. 18th St., Hutchinson.
Steffen Lawrence F., Major, 203 N. Denver, Eldorado.
Stone, Francis M. Jr., Capt., 304 W. 9th St., Ft. Scott.
Stone, Mark L., Capt., 920 Tyler St., Topeka.
Stout, Samuel L., 1st Lt., 2055 S. Main, Wichita.
Weston, William G., Major, Circle Dr., Arkansas City.

Kentucky

Bennett, Willard D., Major, St. Joseph Hosp., Lexington.
Billington, Charles B., Lt. Col., Richmond.
Duncan, Frank L., Major, Monticello.
Gordon, Harold, Lt. Col., 2543 Broadmeade Rd., Louisville.
Grantham, Everett G., Major, 321 W. Broadway, Louisville.
Howard, Moses W., Major, 2d St., Harlan.
Johnson, Marvin E., 1st Lt., RFD 1, Maysville.
Kirkendall, Walter M., Major, 310-Hillcrest Ave., Louisville.
Leonard, Thomas P., Capt., Box 26, Frankfort.
McCormack, W. R., Capt., 1340 Edgewood Dr., Bowling Green.
Mitzlaff, Louis O., Capt., 313 N. Western Parkway, Louisville.
Rosenfeld, Norman B., Major, 236 Forest Park Rd., Lexington.
Roser, Charles L., Major, 288 Ridgeway, Louisville.
Saam, Henry G. Jr., Major, 3814 St. Germaine Ct., Louisville.
Salmon, David L., Major, 614 N. Main St., Madisonville.
Shaw, Houston W., Capt., 614 Heyburn Bldg., Louisville.
Spurling, Roy G., Col., 404 Brown Bldg., Louisville.
Stark, Ray G., Lt. Col., Kirksey.
Stevens, Robert H., Capt., 1306 S. 3d St., Louisville.
Stratman, Edward J., Major, 1144 Park Ave., Newport.
Swann, Lyson B., Capt., 928 Cherokee Rd., Louisville.
Wright, Earl P., Capt., Pikeville.

Louisiana

Armistead, William W., Major, 1200 Fairfield, Shreveport.
Barker, Frank R., Capt., State Col. Train. School, Alexandria.
Carmoucho, Ernest N., Capt., 517 E. 3d St., Crowley.
Colvin, S. H. Jr., Lt. Col., 1036 Nashville Ave., New Orleans.

Louisiana—Continued

Cook, Byron L., Capt., 418 Richardson St., Minden.
Cox, Francis J., Col., 820 Esplanade, New Orleans.
Everhart, Merrill W., Lt. Col., 623 Royal St., New Orleans.
Fitts, W. L. III, Capt., 824 Royal St., Apt. D, New Orleans.
Freeman, Arthur M. Jr., Capt., 1408 Jackson St., Monroe.
Goldstein, Nathan, Major, 1632 Polymnia St., New Orleans.
Italiano, Anthony J., Capt., 929 Picheloup Pl., New Orleans.
Kelly, James D., Capt., 4119 DeLiard Rd., Monroe.
Kisner, Wendell H., Major, 2522 Morning Glory, Baton Rouge.
LaNasa, Philip P., Capt., RFD 4, Box 236, New Orleans.
Montagnino, Angelo T., Capt., Charity Hosp., New Orleans.
Moseley, Charles J., 1st Lt., 2729 Octavia St., New Orleans.
Pincus, Eugene R., Major, 2206 Jackson St., Alexandria.
Pugh, William W. Jr., Capt., Napoleonville.
Rabinowitz, Herman, Major, 2303 Octavia St., New Orleans.
Risser, Joe A., Major, 3500 Prytania, New Orleans.
Sewell, Bennett N. Jr., Major, Boyce.
Stern, Henry M., 1st Lt., Charity Hosp., New Orleans.
Suares, John C., Major, Charity Hosp., New Orleans.
Texada, Blanchard H., Major, 1740 White St., Alexandria.
Vaudry, J. W., Capt., 833 S. Carrollton Ave., New Orleans.
White, John A. Jr., Capt., 1929 S. Carrolton Ave., New Orleans.
Williams, Donald B., Major, Charity Hosp., New Orleans.

Maryland

Brandfield, Ira I., Capt., 305 W. 2d St., Frederick.
Brown, Brooks G. Jr., Capt., 1604 Carey Lane, Silver Spring.
Bryan, Elizabeth L., Capt., 3702 Duvall Ave., Baltimore.
Daly, Joseph M., Major, 8306 16th St., Silver Spring.
Dembrow, William L., Major, 9310 Coles Rd., Silver Spring.
Hixon, Clayton H., Lt. Col., 604 E. Woodbine St., Chevy Chase.
Karfgin, Walter E., Lt. Col., 4331 Harford Rd., Baltimore.
Katzberg, Arthur J., Capt., South Baltimore G. H., Baltimore.
Kelly, Edmund B., Major, 1106 Eutaw Pl., Baltimore.
Merkel, Walter C., Lt. Col., 3333 N. Charles St., Baltimore.
Miller, Earl E., Major, 6623 Eastern Ave., Takoma Park.
Miller, Mitchell H., Capt., Johns Hopkins Hosp., Baltimore.
Mountford, Arthur H., Lt. Col., 4622 Harvard Rd., College Pk.
Nichols, Edward, Capt., Johns Hopkins Hosp., Baltimore.
Nowak, Sigmund R., Capt., 408 S. Patterson Park, Baltimore.
Phillips, George F., Capt., 1902 McCulloh, Baltimore.
Porter, Charles B., Capt., 2338 N. Calvert St., Baltimore.
Rutledge, Benjamin H., Lt. Col., Ellenham Rd., Ruxton.
Schnebley, John T., Major, 2022 Lanier Dr., Silver Spring.
Snyder, Nathan, Capt., 3903 Dolfield Ave., Baltimore.
Waller, William K., Lt. Col., 4327 Marble Hall Rd., Baltimore.
Warren, Leon H., Lt. Col., 319 Fairfield Dr., Bethesda.
Weiner, Hyam A., Capt., 9 E. Biddle St., Baltimore.

Massachusetts

Abrams, Herbert, Capt., 10 Staples St., Lowell.
Adams, Lambi N., Capt., 107 Millbury St., Worcester.
Alexander, Harold G., Capt., 389 Essex St., Salem.
Benedetti, Charles, Capt., 66 Rogers Ave., Lynn.
Blumgart, Herrman L., Lt. Col., 330 Brookline Ave., Boston.
Boynton, George H., Capt., 1 Cummings, Billerica.
Chiminello, Frank J., Capt., 48 Elm St., Quincy.
Cobb, Sidney, Capt., 334 Adams St., Milton.
Conway, Raymond F., Capt., 2068 Northampton St., Holyoke.
Davis, Allan L., Lt. Col., 28 Lenox St., West Newton.
Dushane, Joseph E., Capt., 449 Main St., Haverhill.
Erlanger, Herman, Major, 175 Hemenway St., Boston.
Faber, David, Capt., 7 Creedway, Taunton.
Finnell, Ambrose F., Capt., 311 Ashley Blvd., New Bedford.
Fisher, Alexander N., Capt., 823 High St., Westwood.
Glodt, Herbert R., Capt., 19 Thatcher St., Brookline.
Goldberg, William N., Major, 31 Conant St., Danvers.
Grace, James J., Capt., 75 Osborne Terrace, Springfield.
Haley, William T. Jr., 1st Lt., 531 Beacon St., Boston.
Hindle, William V., Capt., 32 Queensbury St., Boston.
Horton, William H., Capt., 61 Albion St., Fall River.
Hubbard, John P., Col., 97 Randolph Ave., Milton.
Kalish, Louis L., Capt., 802 Blue Hill Ave., Dorchester.
Kelly, Albert L., Major, 37 Brockton Ave., Albington.
Klein, Leonard M., Capt., 145 Townsend St., Roxbury.
Lathrop, Frank D., Major, 25 Whittier Rd., East Natick.
Lynch, John B., Capt., 660 Columbia Rd., Dorchester.
Macklin, James J., Capt., 51 Museum St., Cambridge.
Manwell, Edward J., Major, 20 Ward Ave., Northampton.
Marks, George A., Lt. Col., 85 Bacon St., Winchester.
Minihan, John C., Capt., 1 Kimball St., Haverhill.
Montgomery, Eugene P., Capt., 333 Longwood Ave., Boston.
Mullen, Lawrence G., Capt., 10 Hollis St., Cambridge.
Naterman, Hyman L., Major, 10 Autumn St., Boston.

PHYSICIANS SEPARATED FROM SERVICE

Massachusetts—Continued

Nevins, Simon H., Capt., 611 Adams St., Quincy.
O'Konogi, Hugo S., Capt., 601 Tremont St., Boston.
Orris, Harry W., Capt., 36 Surf Side Rd., Lynn.
Piehler, Edmund O., Capt., 43 Lancaster St., Worcester.
Pohas, George J., 1st Lt., 19 Broadway, Rockport.
Pratt, Gordon C., 1st Lt., 118 Westmoreland Ave., Longmeadow.
Quigley, George E., Major, 33 Green St., Newton.
Raymond, William H., Capt., GE Disp., 920 Western, Lynn.
Rudolph, Israel, Capt., 1543 Robeson St., Fall River.
Scanlon, James G., Capt., 62 West St., Leominster.
Schwartz, Robert, Capt., 1017 River St., Hyde Park.
Seltzer, Joseph, Capt., 49 Irving St., Newton Centre.
Stewart, Artemas J., Lt. Col., 37 Glenwood St., Lowell.
Tanner, Dean W., Major, 721 Huntington Ave., Boston.
Thorndike, Augustus, Col., 509 Hammond St., Chestnut Hill.
Vurguropulos, Xenophon A., Capt., 21 Gold St., Lowell.
Zellin, Morris, Major, Vet. Adm. Facility, Bedford.
Zollinger, Robert M., Col., 15 Bracebridge Rd., Newton Center.
Zonderman, Bernard, Major, 10 Centennial Ave., Revere.

Michigan

Agin, Lambert J., Capt., 1354 Delaware Ave., Detroit.
Arminski, Thomas C., Major, Route 2, Belleville.
Baker, Henry K., Capt., 1217 Union Industrial Bldg., Flint.
Barak, Lewis R., Capt., 7448 W. 7th Mile Rd., Detroit.
Barenholtz, Benjamin, Capt., 1761 Seward Ave., Detroit.
Boileau, Thornton I., Capt., 16546 Parkside, Detroit.
Clark, Nelson H., Capt., 101 W. 26th St., Holland.
Cohen, Hyman H., Capt., 423 Washington Ave., Monroe.
Dickstein, Bernard, Capt., 1154 Calvin St., Grand Rapids.
Durham, Everett W., Major, 21733 Audrey Ave., Dearborn.
Eno, Laurel S., Capt., Harper Hosp., Detroit.
Flanders, John P., Capt., 624 Borgess Ave., Monroe.
Forcey, Clarke M., Major, Receiving Hosp., Detroit.
Frothingham, Joseph R., Capt., 174 Winthrop Rd., Brookline.
Goldman, Aubrey, Capt., 3342 Chicago W., Detroit.
Goldman, Bernard J., Capt., 3354 Sturtevant, Detroit.
Hart, John C., Capt., 10580 Beaconsfield, Detroit.
Himmelberger, Russell J., Major, 412 S. Butler, Lansing.
Hodges, Jason, Capt., 7023 Harper Ave., Detroit.
Hollander, S. Capt., 2027 Godwin Ave. S.E., Grand Rapids.
Johnson, Thomas D., Capt., 1415 Glynn Ct., Detroit.
Kamin, Louis E., Capt., Vet. Adm. Facility, Dearborn.
Kaufman, Lewis D., Capt, 4002 N. Saginaw St., Flint.
Kaye, Raymond J., Capt., % Clair King, RR2, Palmyra.
LeGalley, Kenneth B., Capt., 1310 Pine St., Port Huron.
Lentine, James J., Capt., 4201 Van Dyke, Detroit.
Meisel, Edward H., Capt., 413 Lingle Lane, Midland.
Morrow, Robert J., Capt., 411 W. Ottawa St., Lansing.
Pensler, Meyer, Capt., 2483 Hazelwood Ave., Detroit.
Rivard, Charles L., Major, 22420 Statler Blvd., St. Clair Shores.
Rueger, Milton J., Capt., 1914 Fleetwood, Grosse Point.
Runge, Paul W., Major, University Hosp., Ann Arbor.
Ruth, John G., Capt., 174 Searles, Benton Harbor.
Scott, William C., Capt., 1412 Washington Hts., Ann Arbor.
Small, Henry, Capt., 18674 Warrington Dr., Detroit.
Stageman, John C., Major, 8922 E. Outer Dr., Detroit.
Stanley, Sherburn M., Major, Henry Ford Hosp., Detroit.
Stefani, Raymond, T., Capt., 13516 Stoepel, Detroit.
Stewart, George W., Capt., 2902 State St., Saginaw.
Stobbe, Godfrey D., Capt., 2521 Lothrop Ave., Detroit.
Stockwell, B. W., Major, 1170 Longfellow Ave., Detroit.
Stover, Virgil E., Capt., 3209 Jefferson Dr. S.E., Grand Rapids.
Sugar, Sam, Capt., 3506 Harding Rd., Jackson.
Swenson, Leland L., 1st Lt., 429 Adams St., Grand Rapids.
Timreck, Harold A., Capt., Beaverton.
Warner, William J., Capt., 18234 Birchcrest Dr., Detroit.
Wellman, John M., Col., 301 Seymour, Lansing.
Wiechowski, Henry E., Capt., 2645 Zinow St., Hamtramck.

Minnesota

Anderson, Waldo P., Capt., Buffalo.
Balcome, Milton M., Capt., 1480 Raymond Ave., St. Paul.
Beckman, Wallace G., 1st Lt., 5748 Nicollet Ave., Minneapolis.
Berman, Reuben, Major, 3528 Holmes Ave., Minneapolis.
Catinella, Paul J., Major, Mayo Clinic, Rochester.
Ceplecha, Stanley F., Lt. Col., Redwood Falls.
Cunningham, Charles B., Capt., 401 S. First St., Virginia.
Davis, Luther F., Capt., Wadena.
Erickson, Alvin, Major, Ivanhoe.
Frank, Harold J., Capt., New Prague.
Glickman, Leo G., Major, Vet. Adm. Facility, Minneapolis.
Grindlay, John H., Major, Mayo Clinic, Rochester.
Hollenhorst, Robert W., Major, 121 9th Ave. N., St. Cloud.

Minnesota—Continued

Jensen, Nathan K., Lt. Col., 184 Seymour Ave., Minneapolis.
Kusz, Clarence V., Capt., 742 Hawthorne Ave., St. Paul.
Lyon, John D. Jr., Major, 3617 Pleasant Ave. S., Minneapolis.
Mac Millan, David G., Capt., 801 SE 6th St., Minneapolis.
MacRae, Gordon C., Lt. Col., 3008 E. 2d St., Duluth.
Marks, Roger W., Capt., 740 Chippewa Ave., St. Paul.
Meyer, Jules O., Major, Grand Rapids.
Minge, Raymond K., Capt., Clarkfield.
Monson, Einer M., Capt., 4505 York Ave. N., Minneapolis.
Pankratz, Peter J., Capt., Mountain Lake.
Papermaster, Theodore C., Capt., 705 3d Ave. S., St. Cloud.
Passarella, Frank A., Major, Vet. Adm., St. Cloud.
Pearson, Clarence C., Lt. Col., Mayo Clinic, Rochester.
Perlman, Everett C., Lt. Col., 620 Med. Arts Bldg., Minneapolis.
Ravits, Harold G., Capt., 918 Osceola Ave., St. Paul.
Schilla, Frederick W. Jr., Major, 766 Sims St., St. Paul.
Schwarz, Frank W., Major, Met. Adm., Ft. Custer.
Seashore, Rosel T., Capt., 810 Med. Arts Bldg., Duluth.
Smith, Durand, Lt. Col., St. Cloud.
Walsh, Edward F., Capt., 1540 Roblyn Ave., St. Paul.
Wilder, Robert L., Major, 4525 Wooddale Glen, Minneapolis.

Missouri

Adler, Morton W., Major, 7527 S. Broadway, St. Louis.
Aldredge, William M., Capt., St. Louis City Hosp., St. Louis.
Appleberry, Charles H., Lt. Col., 706 W. Main St., Flat River.
Ashmore, Buell L., Major, 515 Benton Ave., Excelsior Springs.
Beam, Sim F., Col., 52 Middlesex Dr., Brentwood.
Benincasa, Anthony V., 1st Lt., 4434 Ashland Ave., St. Louis.
Birsner, Louis J., Lt. Col., 634 N. Grand, St. Louis.
Buckner, Robert C., Major, Mexico.
Cady, Lee De, Lt. Col., 46 Hillvale Dr., St. Louis.
Coffelt, Kenneth C., Capt., 832 E. Grand, Springfield.
Drury, Robert L., Capt., 5218 Pernod, St. Louis.
Fish, Virgil O., Lt. Col., 780 Yale Ave., University City.
Frazier, Victor E., Major, 6323 Main St., Kansas City.
Graves, George T. Jr., Major, State Hosp. 4, Farmington.
Harris, Harold S., Capt., Troy.
Harrison, Robert K., Capt., Mo. Methodist Hosp., St. Joseph.
Heimann, Verne R., Capt., 5041 Waterman Blvd., St. Louis.
Ho, Kwan H., Lt. Col., 6746 Marquette Ave., St. Louis.
Keffler, Karl L., Capt., 1943 N. 11th St., St. Louis.
Keys, Edgar H. Jr., Capt., 5465 Cabanne Ave., St. Louis.
Kipen, Charles S., Capt., 216 S. Kingshighway, St. Louis.
Kircher, T. E. Jr., Major, 2006 Brentwood Ave., Brentwood.
Klingner, George M., Major, 1437 Washington, Springfield.
Lindquest, Carl N., Major, 106 W. 14th St., Kansas City.
Luppens, Albert F., Lt. Col., 3918 S. Benton, Kansas City.
McDowell, Edward A., Major, 2601 N. Whittier, St. Louis.
McLaughlin, Robert J., 1st Lt., 94 Aberdeen Pl., Clayton.
Mira, Joseph J., Capt., City Hospital, St. Louis.
Morton, Roscoe F., Capt., City Hosp., 1515 LaFayette, St. Louis.
Payne, Voris R., Capt., City Hosp., St. Louis.
Pearson, Paul E., Major, % A. G. Mudd, R 3, Leeds Station, Kansas City.
Peck, Chester R. Jr., Capt., Malden.
Perelman, Harry, Capt., 216 S. Kingshighway, St. Louis.
Poe, John S., Lt. Col., 6249 Washington Blvd., St. Louis.
Purcell, Harry K., Capt., 1325 S. Grand Blvd., St. Louis.
Rigney, Levi M., Capt., 1039 E. Park Dr., Springfield.
Rizzo, Ettore G., Capt., Oregon.
Rodman, George H., Major, 2415 Kingshighway, DePaul Hosp., St. Louis.
Rosenbaum, Harry D., Major, 7386 Kingsbury, University City.
Roufa, Joseph F., Capt., 7045 Northmore Dr., University City.
Schilling, Robert D., Major, 7730 Davis Dr., Clayton.
Schupmann, Gustav A., Capt., Ballwin.
Shefts, Lawrence M., Major, Barnes Hosp., St. Louis.
Shelton, Edward O., Capt., 109 W. High St., Eldon.
Spelman, Arch E., Major, Community Hosp., Smithville.
Stephan, August P., Capt., 3649 Vista Ave., St. Louis.
Stewart, John W., Col. 275 Union St., St. Louis.
Strub, Giles J., Major, 4601 Pope Ave., St. Louis.
Sutherland, Richard L., Major, 3311 E. 30th St., Kansas City.
Wilson, Robert B., Capt., RFD 6, Independence.
Yancey, Daniel L. Jr., Lt. Col., 500 Holland Bldg. Springfield.
Zwart, Edward A., 1st Lt., 4020 Hartford St., St. Louis.

Montana

Gnose, Donald D., Capt., Broadwater Hosp., Townsend.
Harmon, George A., Major, Fort Harrison.
Lipow, Eugene G., Major, Flathead Agency, Dixon.
Movius, Arthur J. Jr., Capt., 1136 N. 28th St., Billings.
Sale, George G., Major, 420 McLeod Ave., Missoula.

PHYSICIANS SEPARATED FROM SERVICE

New Hampshire

Clough, Joseph M., Major, New London.
Feltner, John B., Capt., Littleton.
Israel, Julius, Capt., 36 High St., Berlin.
Kellett, Harry R., Capt., Main St., Salem Depot.
Kelly, Adolphus B., Major., Colby St., Colebrook.
Kennard, John H., Capt., 967 Elm St., Manchester.
Lombard, Everett F., Capt., Short Falls.
Stearns, Carl M., Capt., 20 Pine St., Claremont.
Theobald, Louis C., Capt., 69 High St., Exeter.

New Jersey

Alpren, Bernard F., Capt., 34 Auburn St., Paterson.
Angelo, Joseph A., Major, 10 Centre Ave., Secaucus.
Bauman, Richard O., Capt., 17 Hillside Ave., Newark.
Beckett, Ronald S., Major, Box 208, Red Bank.
Belafsky, Henry A., Major, 150 Green St., Woodridge.
Carbone, Ralph, Capt., 2431 Lemoine Ave., Coytesville.
Clement, Baxter L., Capt., 15 Washington St., Newark.
Cott, Abe A., Capt., N. J. State Hosp., Marlboro.
De Grace, Frank H., Capt., 344 Gregory Ave., Passaic.
Del Duca, Vincent P., Capt., 510 E. Main St., Moorestown.
Di Leo, Victor S., Capt., 66 Central Ave., Orange.
Eldkraut, Edward C., Capt., 129 Highland Ave., Passaic.
Fridrich, Harry E., Capt., 4728 Browning Rd., Merchantville.
Graeter, Fritz A., Capt., 265 Gregory Ave., Passaic.
Grueninger, Edward F., Capt., 24 Columbia Ave., Cliffside Park.
Hicks, Alfred M., Major, 63 N. Fullerton Ave., Montclair.
Hughes, Samuel B., Capt., 246 E. Pine Ave., Wildwood.
Kohn, Joseph J., Capt., 107 Market St., Trenton.
Kraemer, Manfred, Major, 234 Roseville Ave., Newark.
Kraut, Arthur M., Lt. Col., 266 Barrow St., Jersey City.
Long, Elias E., Capt., Monmouth Mem. Hosp., Long Branch.
McCune, Wallace H., Capt., 192 Paterson Ave., E. Rutherford.
Major, Morton M., Capt., 4212 Ventnor Ave., Atlantic City.
Mazzarella, Carl L., Capt., 84 Maple St., Paterson.
Miller, William H., Capt., 37 S. Main St., Woodstown.
Mizroch, Solomon B., Major, 40 W. Palisade Ave., Englewood.
Pindar, Arthur W., Major, 627 Queen Anne Rd., Teaneck.
Platt, Edward V., Capt., 221 8th Ave., Haddon Heights.
Protzman, Thomas B., Col., 408 Conrad Rd., Englewood.
Pusin, Max N., Capt., 100 Clifton Pl., Jersey City.
Repta, Stephen Jr., Capt., 804 Madison Ave., Union.
Ritter, Morton D., Capt., 37 S. Kingston Ave., Atlantic City.
Rubin, Abraham A., Capt., 379 Washington Ave., Belleville.
Santangelo, Joseph A., Capt., 286 Clifton Ave., Newark.
Satulsky, Emanuel M., Major, 652 Park Ave., Elizabeth.
Schneider, Richard C., Capt., 874 S. 13th St., Newark.
Schwartz, Harold B., Capt., 63 Palisade Ave., Union City.
Sharlin, Herbert S., Capt., 17 Treacy Ave., Newark.
Shuster, Samuel A., Capt., 101 S. Rhode Island, Atlantic City.
Sobin, Julius, Lt. Col., 24 Waverly Ave., Newark.
Sommer, George N. J. Jr., Lt. Col., 120 W. State St., Trenton.
Spritzer, T. D., Major, S. Wash. Ave.-Newmkt Rd., Dunellen.
Stueck, George H. Jr., Major, 315 Spring Ave., Ridgewood.
Visceglia, Frank R., Capt., 99 Gregory Ave., Passaic.
Wallis, Josiah K., Capt., 78 Alexander St., Princeton.
Wikoff, John L., Major, 799 Pennington Ave., Trenton.
Zweibel, Leonard, Capt., 871 S. 11th St., Newark.

New York

Abramson, Arthur, Major, 371 Ft. Washington Ave., New York.
Axell, Joseph, Capt., 297 Humboldt St., Brooklyn.
Battista, Vincent J., Capt., 2161 Bruckner Blvd., New York.
Beck, John, Capt., 630 Victory Blvd., Staten Island.
Bernstein, Saul, Capt., 311 E. 8th St., New York.
Biffer, Louis, 1st Lt., 141 Stanton St., New York.
Borak, David, Major, 560 W. 218th St., New York.
Brayton, Donald F., 1st Lt., St. Luke's Hosp., New York.
Brown, Harold, Capt., 305 W. End Ave., New York.
Bulger, C. D. J., Capt., 85 Old Mamaroneck Rd., White Plains.
Campbell, Eldridge H. Jr., Col., 32 Willett St., Albany.
Canaan, Robert, Capt., 67-79 Groton St., Forest Hills, LI.
Carpenter, Leonard D., Capt., Germantown.
Clement, Stephen M., Capt., 1321 Genesee Bldg., Buffalo.
Cohen, Victor L., Major, 760 Potomac Ave., Buffalo.
Conly, Hugh E., Capt., 164 New York Ave., Brooklyn.
Contino, Charles A., Capt., 330 Waverly St., New York.
Cooke, Stanley J., 1st Lt., 133 Curtis Pl., Auburn.
Copulsky, Louis, Capt., 2020 Kings Highway, Brooklyn.
Danzig, Samuel D., Capt., 1820 Crotona Ave., New York.
DePasquale, Matthew N., Capt., Laurel Ave., East Northport.
Dooley, Paul, Capt., 272 Ontario St., Buffalo.
Eisenberg, Eli, Capt., 8100 19th Ave., Brooklyn.
Finegan, Rexford W., Major, 303 E. 20th St., New York.

New York—Continued

Francis, Vincent D., Major, 7101 Colonial Rd., Brooklyn.
Freeland, Edward M., Major, N. Y. Life Ins. Co., New York.
Gartland, William J., Capt., 115-59 219 St., St. Albans, LI.
Gerson, Stanley, Capt., Sea View Hosp., Staten Island.
Gottschalk, Robert B., Capt., Albany Hosp., Albany.
Gozan, Henry A., Capt., 118-01 224th St., St. Albans.
Greenspan, Leon, Capt., 1560 Grand Concourse, Bronx.
Groff, Frederick A. Jr., Capt., 92-45 218 St., Queens Village.
Hall, Cloves T., Major, Union St., Morrisville.
Hamilton, Albert C., Capt., 1616 E. 13th St., Brooklyn.
Healy, Joseph, J., Capt., 593 McDonough St., Brooklyn.
Homokay, Ernest G., Capt., 5 Jackson St., Silver Creek
Horowitz, Samuel, Capt., 627 State St., Ogdensburg.
Hurley, James W., Capt., 12 Morris Ave., Buffalo.
Ingalls, Stanley S., Major, 28½ S. First St., Fulton.
Ippolito, Thomas L., Capt., 72-16 65th Pl., Glendale, L.
Jewett, John F., Capt., 380 Vanderbilt Ave., Brooklyn.
Kaplan, David, Capt., 310 E. Church St., Elmira.
Kapp, Louis A., Major, 1401 University Ave., Bronx.
Keller, Leo, Capt., 267 Beach 130th St., Belle Harbor, LI
Ketcham, Frederick, Capt., Fishkill.
Krug, Joseph H., Capt., 300 Central Park West, New York.
La Rosa, Frank J., Capt., 63-03 Everton St., Rego Park.
La Tona, Salvatore R., Capt., 552 Third St., Niagara Falls
Law, Harry C., Capt., 82 Washington St., Cattaraugus.
Mac Dowell, Robert L., 1st Lt., 455 Kenwood Ave., Delma
Mackowski, Herbert W., Capt., 361 Chili Ave., Rochester.
Magiday, Morton, Capt., 1150 Grand Concourse, Bronx.
March, T. A., Major, Harlem Valley St. Hosp., Wingdal
Meiselman, Murray L., 1st Lt., 1672 Ocean Ave., Brooklyn.
Meister, George S., Major, 669 Van Siclen Ave., Brooklyn.
Messina, Joseph C., Capt., 1613 Avenue Z, Brooklyn.
Meyer, Edore, Capt., Attica.
Mills, Roswell S., 1st Lt., East Setauket, L. I.
Moore, David D., Lt. Col., 1215 5th Ave., New York.
Murphy, Louis R., Major, 232 Seymour, Port Chester.
Nelson, Leon G., Capt., 172-90 Highland Ave., Jamaica.
Newman, William H. F., Major, Stamford.
Osher, Norman W., Major, 540 Park Ave., New York.
Otto, James R., 1st Lt., 6 Third Ave., Huntington Station, LI
Patrizio, Rudolph J., Major, 295 E. 163d St., New York.
Payes, Leon G., Major, 284 Main St., Binghamton.
Pitman, David B., Capt., 25 Mackey Ave., Port Washington.
Rahilly, George T. F., Capt., Brightwaters, Long Island.
Rosenfield, Solomon Z., Major, 570 W. 204 St., New York.
Ross, Francis A., 1st Lt., 101-36 107th St., Richmond Hill.
Satlof, Leo M., Capt., 100 Thayer St., New York.
Schmidt, John G., Lt. Col., 1045 Park Ave., New York.
Schwartz, Marcus, Lt. Col., 91 Sterling Ave., White Plains.
Sharpe, James D., 1st Lt., 1148 Fifth Ave., New York.
Sheeran, James D., Capt., 219 76th St., Brooklyn.
Shulman, Harold C., Major, 21 Genesee St., Binghampton.
Silverman, Samuel, Capt., 812 Riverside Dr., New York.
Smith, Joseph, Capt., 301 Warren St., Hudson.
Snow, Herman B., Major, 425 Robinson St., Binghampton.
Spitz, Samuel H., Lt. Col., 237 E. 20th St., New York.
Squadrito, John J., Capt., 533 Fifth Ave., Troy.
Standish, Philip M., Capt., 117 N. Main St., Canandaigua.
Steward, Clayton M., Capt., 64 Cortland St., Norwich.
Stibbs, Henry W. B., Major, 57 Marion Ave., Poughkeepsie.
Stonehill, Alfred A., Capt., 32-50 93d St., Jackson Heights.
Sussman, Ralph D., 1st Lt., Willard Parker Hosp., New York.
Teitelbaum, Michael H., Lt. Col., 55 Pennsylvania, Mt. Vernon.
Tella, Rocco A., Capt., 43-15 46th St., Sunnyside, Long Island.
Thom, Charles H. Jr., Capt., 34 Ward Ave., Staten Island.
Turner, Hyman, Major, 224 Highland Blvd., Brooklyn.
Vicens, Christobal A., Capt., 565 W. 144th St., New York.
Waldman, Milton H., Capt., 6310 21st Ave., Brooklyn.
Warner, Allan H., Major, 43-02 60th St., Woodside.
Weinbaum, Samuel, Capt., 2992 Bedford Ave., Brooklyn.
Weinstein, Edwin A., Major, 1049 Park Ave., New York.
Weinstein, Vernon A., Capt., 165 E. 95th St., New York.
Weiss, Frank, Capt., 2907 Kingsbridge Ter., Bronx.
Weitz, Henry A., Major, 1255 Eggert Rd., Eggertsville.
Worboys, Carl S., Capt., Mexico.
Ziegler, Hrolfe R., Col., 245 Alexander St., Rochester.

North Dakota

Cook, Paul T., Capt., Valley City.
Henderson, Robert W., Major, 405½ Broadway, Bismarck.
Herman, Lester R., Major, 406 Eddy Ct., Fargo.
Holbrook, Joseph S., Capt., Statesville.
McCannel, Malcolm A., Capt., Minot.
Weible, Ralph D., Capt., 1217 7th St., Fargo.

PHYSICIANS SEPARATED FROM SERVICE

Ohio

Barker, Myron J., 1st. Lt., 209 S. Cole St., Lima.
Baurichter, F. X. L., Capt., Devils Backbone Rd., Cincinnati.
Bennett, Kenneth E., Capt., 302 N. Wooster Ave., Strasburg.
Bill, Herbert E., Lt. Col., 3392 Silsby Rd., Cleveland.
Brown, Russell N., Capt., W. Franklin St., Centerville.
Docter, Luebert, Capt., Genoa.
Duckwall, Henry M., Capt., 637 Troy St., Dayton.
Fasoldt, Laurence O., Capt., Greenville Ave., Glendale.
Fowler, Murray N., Major, 440 Stewart Lane, Mansfield.
Franz, Lyle C., Capt., Ripley.
Goodman, David H., Capt., 852 Linn Dr., Cleveland.
Goodman, Lawrence H., Lt. Col., 110 W. Main Cross, Finlay.
Goodman, William E., Capt., 177 Porter St. N.E., Warren.
Hauman, Hazen L., Major, 316 Michigan, Toledo.
Hibbs, Ralph E., Major, Euclid & 93d, Cleveland.
Howard, Kenneth R., Major, 2702 Inwood Dr., Toledo.
Hunter, George G., Major, 120 S. 4th St., Ironton.
Jansen, Joseph H., 1st Lt., 506 Mentoln Ave., Cincinnati.
Kalaman, Francis J., Major, 2846 E. 120th St., Cleveland.
Kirkbride Willis J., Major, 2723 Monroe St., Toledo.
Kolb, George C., Capt., RR 11, Mt. Healthy.
Kronenberg, Sanford, Capt., 21 Indiana Ave., Youngstown.
Krush, Thaddeus P., Capt., 7410 Lorain Ave., Cleveland.
Lame, Louis A., Capt., 14887 Kinsman Ave., Cleveland.
Lepsky, Harry O., Capt., 4505 Perth Lane, Cincinnati.
Longacre, Jacob J., Major, 3460 Oxford Terrace, Cincinnati.
McConkey, Auren W., Capt., 134 34th St. N.W., Canton.
Mastropaolo, Anthony J., Capt., Main St., Batavia.
Mayfield, Frank H., Lt. Col., 3543 Raymar Blvd., Cincinnati.
Miller, Thomas E., Capt., 721 Park Ave., Ironton.
Mitchell, William F., Capt., 21 E. State St., Columbus.
Oxley, Charles M., Capt., 3301 Lookout Circle, Cincinnati.
Palmer, Erroll P. Jr., Major, 611 Professional Blvd., Cincinnati.
Parker, George J., 1st Lt., 779 W. State St., Columbus.
Pearlman, Albert H., Capt., 502 Doctors Bldg., Cincinnati.
Price, Walter S., Lt. Col., 55 Popular St., Phillipsburg.
Reiheld, Robert E., Capt., 120 S. Jefferson St., Loudonville.
Reno, Edward C., Major, 800 18th St. N.W., Canton.
Ringelman, Norbert P., Capt., Cincinnati G. H., Cincinnati.
Rowe, Peter, Lt. Col., 1906 Forestview Dr., Cleveland Heights.
Schwartz, Abe L., Capt., Box 270 Ohio Pike, Cincinnati.
Simpson, Alexander M., Capt., 4083 Princeton Blvd., S. Euclid.
Smith, George R., Major, 17 E. Erie St., Painesville.
Smith, John W., Capt., Grand Rapids.
Snyder, Warren G., Capt., 723 Oakmont Ave., Steubenville.
Stewart, James V., Capt., 1015 Stratford Ave., Massillon.
Stickley, Louis P., Capt., 19 W. 8th St., Cincinnati.
Strance, John G., Capt., Wyoming.
Weil, Alvin M., Major, 573 Moreley Ave., Akron.
Williamson, Harold A., Capt., 335 Park Ave., Dent.
Wills, Benjamin F., Major, N. Market St., McArthur.
Woldman, Edward E., Lt. Col., 1940 Belvoir Blvd., S. Euclid.

Pennsylvania

Abbott, Albert J., Major, 100 E. Main St., Nanticoke.
Adams, Harry A., Major, 115 Carlisle St., Hanover.
Albright, Chester H. Jr., Lt. Col., Main St., Harleyville.
Beloff, Harry, Capt., 844 Ritner St., Philadelphia.
Black, H. Alexander Jr., Capt., 909 Franklin Ave., Aliquippa.
Cantey, William C., Major, Montgomery Court Apt., Narberth.
Converse, James M., Major, 366 Broad St., Montoursville.
Crosby, William R., 1st Lt., 3412 Old York Rd., Philadelphia.
Deaterly, Charles F., Major, 320 Franklin St., Quakertown.
Douds, Harry E., Major, 1208 8th Ave., Beaver Falls.
Enyeart, Harvey F., Capt., 6007 Center Ave., Pittsburgh.
Fehr, John U., Capt., 1038 Franklin St., Reading.
Glosser, William E., Capt., 372 N. Front St., Reading.
Gopadze, Illarion I., Capt., 255 S. 17th St., Philadelphia.
Grem, Francis M., Capt., 2113 W. Tioga St., Philadelphia.
Grimes, James T., 1st Lt., 1110 Fillmore St., Philadelphia.
Helzlsouer, Wilbert J., Major, 100 Euclid Ave., Dravosburg.
Herring, Elmer F., Capt., 116 Greenwood Ave., Wyncote.
Hundley, Joseph W. Jr., Lt. Col., 600 Oxford Rd., Bala-Cynwyd.
Jones, Eugene M., Major, 1601 Brinton Ave., North Braddock.
Kaiser, William F. Jr., Major., 2336 N.E. 23d Ave., Portland.
Keveney, John J., Capt., 3726 Spring Garden St., Philadelphia.
Kistler, William S., Capt., 118 Main St., Pennsburg.
Kline, Meyer A., Major, Dalton.
Kopf, Lawrence J., Capt., 1086 Franklin St., Johnstown.
Levin, Herbert J., Capt., RD 1, Belle Vernon.
Livingston, William H., Capt., 201 Julian, Ebensburg.
McLaughlin, W. B., Lt. Col., 1524 Termon N.S., Pittsburgh.
McLenahan, T. M. Jr., Capt., 500 Greenfield Ave., Pittsburgh.
Maguda, Thomas A., Major, 96 Newport St., Alden Station.

Pennsylvania—Continued

Maratta, John W., Capt., 82 Main St., Fair Oaks.
Mering, James H. Jr., Major, 211 Beverly Rd., Mt. Lebanon.
Miller, Kenneth F., Lt. Col., 541 Perry Highway, Pittsburgh.
Miller, Oliver F., Capt., 203 W. Main St., Bloomsburg.
Mobilio, Joseph A., Major, 1442 McKean St., Philadelphia.
Morgan, David W., Major, 1051 Blackridge Rd., Wilkinsburg.
Morris, Charles C. II, Capt., County Line Rd., Villa Nova.
Morris, Edward S., Major, Wyncote.
Musselman, Clyde V., Capt., 205 N. George St., Millersville.
Niebaum, Albert H., Capt., 22 E. Wyomissing Ave., Mohnton.
Notz, Frank R., Capt., 802 S. Webster Ave., Scranton.
Palmer, Delmar R., Major, 226 W. 26th St., Erie.
Parker, Alan P., Lt. Col., Radnor & Fishers Rds., Bryn Mawr.
Perrin, Samuel R., Capt., 2 Heinz Ter., Sharpsburg.
Peterman, James E., Lt. Col., 1237 School St., Indiana.
Pratt, William C., Major, Geisinger Mem. Hosp., Danville.
Pugliese, F. M., Lt. Col., 338 S. Franklin St., Wilkes-Barre.
Ramey, Leonard W., Capt., 105 Colburn Ave., Clarks Summit.
Reed, William L., Capt., Box 177, Rural Valley.
Regan, Joseph J., Major, 440 McKee St., Monessen.
Rote, William A., Major, 1002 Chelton Ave., Pittsburgh.
Rothermel, Earl W., Major, 746 N. 10th St., Reading.
Rugh, J. L. K., Major, Box 176, Bolivar.
Sayen, John J., Capt., 1701 Locust St., Philadelphia.
Seaman, Stephen F., Major, 564 Hillside Ave., Bethlehem.
Simpson, Allen J. Jr., Capt., 1318 Wilson St., McKeesport.
Singmaster, Lawrence, Capt., 177 Summit Lane, Cynwyd.
Smith, Lauren H., Col., 349 Milbank Rd., Bryn Mawr.
Spector, Martin, Capt., 2617 Martha St., Philadelphia.
Spelyng, Walter A., Capt., 2604 N. Main Ave., Scranton.
Stanton, James N. Jr., Major, 6215 5th Ave., Pittsburgh.
Stone, Ralph E., Col., 211 Lincoln Ave., Connellsville.
Straughn, Robert A., 1st Lt., 1234 W. Hilton St., Philadelphia.
Sweitzer, Carl E., Major, 14 S. 3d St., Hamburg.
Tittle, Charles R., Capt., Box 52, Abington.
Waltman, Charles A., Major, 910 Wilkes Barre St., Easton.
Westcott, William I., Capt., 58 E. Court St., Doylestown.
Whitcomb, Luther M., Major, 346 W. South St., Carlisle.
Wilson, Thomas W., Capt., 125 S. High St., Zelienople.

South Carolina

Able, LeGrand G., Major, 849 E. Main St., Spartanburg.
Ashby, Joe M., Capt., Roper Hospital, Charleston.
Buchanan, John C. Jr., Lt. Col., Winnsboro.
Chappell, Buford S., Major., Columbia.
Colquitt, Alfred O. Jr., Lt. Col., General Hosp., Spartanburg.
Dusenberry, James F., Capt., Laurens.
Hook, Marion B., Capt., 129 Harden St., Columbia.
Poole, Lewis R., Capt., Box 236, Easley.
Sanders, Keith F., Capt., PO Box 66, Kingstree.

South Dakota

Auld, Merritt A., Major, Plankington.
Burgess, Roy E., Capt., Gettysburg.
Dickinson, John H., Capt., Canistota.
Studenberg, Joseph E., Capt., Gregory.

Tennessee

Bennett, Basil T., Capt., Trenton.
Burd, Joseph G., Capt., Campbell Clinic, Memphis.
Crutcher, Richard R., Capt., 2001 Hayes St., Nashville.
Dodd, David W., Major, 307 N. Spring St., Murfreesboro.
Dubard, Horton G., Major, 2214 Terrace Ave., Knoxville.
Ferguson, William H., Capt., St. Joseph's Hosp., Memphis.
Foster, Robert H., Lt. Col., Union & Kimbrough St., Memphis.
Gadberry, Eugene W., Capt., 1118 N. 1st St., Nashville.
Herd, Leslie P., Col., 201-2 Arcade Bldg., Elizabethton.
Heuer, Douglas F. Jr., Lt. Col., Sweetwater.
Hubbard, George B., Major, Nashville Gen. Hosp., Nashville.
Humphrey, Tom N., Capt., Selmer.
Hyatt, Herschel H., Lt. Col., Copperhill.
Hyatt, Norman L., 1st Lt., Covington.
Kelsey, Richard F., Major, Collierville.
Kimbrough, Robert C. Jr., Lt. Col., Madisonville.
Landis, Harry Z., Capt., 3173 Givens St., Memphis.
Levinson, Herman, Capt., Pulaski.
McCann, Ezelle, Major, 3195 Spottswood Ave., Memphis.
Martin, Travis H., Lt. Col., Battery Lane, Nashville.
Massengill, James, Capt., 218 W. Main St., Halls.
Moss, John P., Capt., 1155 Radcliffe, Memphis.
Seligman, Ewing, Major, 3415 Murphy Rd., Nashville.
Sullenberger, Samuel D., Capt., Elfin Rd., Lookout Mt.
Tucker, L. S., Capt., Hawkins Co. Health Dept., Rogersville.
Weaver, T. S., 1st Lt., Murfreesboro Rd., Nashville.

PHYSICIANS SEPARATED FROM SERVICE

Texas

Bailey, Stanfill W., Capt., 1149 Santos St., Abilene.
Baird, William L., Capt., Wiergate.
Blake, John V. Jr., Major, Box 294, Floresville.
Bowyer, Mack F., 1st Lt., Parkland Hosp., Dallas.
Boyle, Frank B., Capt., 208 Petroleum Bldg., Big Spring.
Brake, Ira F., Capt., PO Drawer S., San Augustine.
Brown, Brian T., Major, 2210 Dallas St., San Angelo.
Brumage, William S., Capt., Lubbock Sanitarium, Lubbock.
Carlisle, Margil C., Capt., 1410½ Austin Ave., Waco.
Carter, James W., Capt., Missouri Pacific Hosp., Palestine.
Collom, Spencer A. Jr., Major, 3016 Pine, Texarkana.
Colyer, George E., Capt., 306 Clifford St., Corpus Christi.
Cooper, Albert L., Capt., Chapel Hill.
Crenshaw, Allen J., 1st Lt., 3848 Mockinbird Lane, Dallas.
Cull, Herbert G., Major, RFD 4, Box 14, Houston
Curbo, James R., Capt., 903 N. 11th St., Waco.
Daily, Robert L., Major, 1411 9th St., Wichita Falls.
Delany, John J., Major, 906 22d St., Galveston.
Dowling, Urban J., Capt., 702 E. 12th St., Sweetwater.
Drane, Hugh A. Jr., Capt., W. Second Ave., Corsicana.
Dudgeon, Howard R. Jr., Capt., Professional Bldg., Waco.
Estess, Berthold H., Capt., 3746 Darcus St., Houston.
Faris, Arthur M., Major, 1004 Med. Arts Bldg., Houston.
Fitzwilliam, Clare D., 1st Lt., Smithville.
Gilula, Adolph, Capt., 2906 21st St., Lubbock.
Griffin, L. L., Lt. Col., Pathology Dept., U. of Texas, Galveston.
Halamicek, John F., Capt., Jefferson Davis Hosp., Houston.
Hamilton, Oscar A. Jr., Capt., Richards.
Harris, Joseph B., Capt., Midlothian.
Hart, Gaylord A., Lt. Col., 1327 Med. Arts Bldg., Dallas.
Hayes, Elmer R., Lt. Col., 2827 Jones St., Greenville.
Holmes, Mansell B., Lt. Col., Vet. Hosp., Waco.
Hotchkiss, Hubert L., Capt., 614 W. Owing St., Denison.
Howard, Glenn T., Major, P. O. Box 1040, Bruni.
Hulsey, Simeon H., Col., 2214 Ward Parkway, Fort Worth.
Hunt, Kent N., Capt., 525 E. Mayfield, San Antonio.
Hurn, Robert E., 1st Lt., Route A, Henrietta.
Hutchinson, Benjamin B., Capt., 1519 Broadway, Lubbock.
Jaehne, Robert J., Lt. Col., 2109 Schule Ave., Austin.
Jerabeck, John D., Lt. Col., 1540 Sul Rose St., Houston.
Johnson, Robert H., Capt., Hamlin.
Jones, Dean B., Major, 112 N. 6th St., Kingsville.
Keith, Joseph M., Capt., Lake Worth, Rt. 2, B 270, Ft. Worth.
Klein, Perry B., Capt., St. Joseph's Infirmary, Houston.
Knolle, Ben E., Capt., Industry.
Long, James W., Lt. Col., P. O. Box 127, Port Arthur.
Loveless, Robert W., Major, Lamesa.
McCall, James D., Capt., Williams Clinic, Mineral Wells.
McCarthy, J. E., Capt., 407 E. Mistletoe Ave., San Antonio.
McConchie, Richard D., Major, 1815½ Lucile, Wichita Falls.
McFadden, Candour A., Major, Abilene State Hosp., Abilene.
Mahone, Marion W., Major, Jefferson Davis Hosp., Houston.
Mansur, Harl D. Jr., Major, 1513 S. Main St., Big Springs.
Maxwell, Ernest A., Major, 2412 Vincent St., Brownwood.
May, Lester M., Capt., 431 Paseo Encinal, San Antonio.
Meitzen, Travis C., Capt., 121 S. Brown Ave., Denison.
Merrick, Benjamin A., Capt., Baylor Hosp., Dallas.
Moon, Roy E., Capt., Chandler.
Olcott, Cornelius Jr., Lt. Col., 1217 E. Tyler St., Harlingen.
Osborn, Robert W., Major, Box 208, McAllen.
Owers, Albert, Capt., 1516 N. 7th St., Temple.
Pace, Bedford F., Capt., Box 606, Nederland.
Packard, Duan E., Major, Kerrville.
Peacock, George E., Major, 4632½ Junius St., Dallas.
Phillips, Claurice M., Col., Levelland.
Post, Samuel P. Jr., 1st Lt., Boerne.
Price, Richard O., Capt., Box 671, Kilgore.
Price, Robert L., Capt., 804 Cherry St., Graham.
Quillian, Causey C., Capt., Kenedy.
Reed, Walter E., Capt., 506 Nebraska St., San Juan.
Rhode, William S., Major, 505 Chestnut St., Colorado City.
Rippy, Edwin L., Lt. Col., 3622 Fairmont, Dallas.
Roberts, Charles J., Capt., 511 NW Fourth St., Mineral Wells.
Roberts, Joe H., Major, Jefferson Davis Hosp., Houston.
Rudd, Laurence H., 1st Lt., Burleson.
Seale, William H., Major, 735 Sayles Blvd., Abilene.
Shaver, Benjamin B., Lt. Col., 141 Club Dr., San Antonio.
Sheckles, Loyd W. Jr., Lt. Col., 3824 Ave., P, Galveston.
Smith, Millicent Z., Capt., 1309 Bell St., Wichita Falls.
Smith, William J. B., 1st Lt., 2218 Main St., Lubbock.
Smith, William L., Capt., Box 5213, Sonora.
Sory, Crysup, Major, Freer.
Sparkman, Robert S., Lt. Col., % E. H. Sparkman, Baylor U., Waco.

Texas—Continued

Steckler, Milton I., Lt. Col., 607 Marine Bank Bldg., Houston.
Steger, Joseph H., Col., 3100 Bellaire Dr. W., Ft. Worth.
Stephen, Weldon W., Major, 4525 Ave., N, Galveston.
Stone, Joseph R., Major, 142 Park Hill Dr., San Antonio.
Sweeney, James S., Col., % Dr. H. Walton Cochran, Med. Arts Bldg., Dallas.
Sykes, Edwin M. Jr., Capt., 201 Charles Rd., San Antonio.
Trimble, Orman H., Major, Greenville.
Tyler, Monroe R., Major, 1802 McCullough, San Antonio.
Vaughan, Luther M., Lt. Col., 704 Dallas Ave., Houston.
Walker, Newton F., Major, 403 1st Nat. Bank Bldg. El Paso.
Watkins, Walter P., Major, Luling.
West, Robert C., Lt. Col., N. Gentry & Rice, Hamilton.
White, Byrd E. Jr., Capt., 4930 Swiss Ave., Dallas.
Williamson, Thomas J., Capt., Box 205, Eldorado.
Zionts, Martin A., Capt., 5104 Caroline St., Houston.

Utah

Clark, Riley G., Capt., 261 N. University Ave., Provo.
Hetzel, Clarence C. Jr., Major, 2548 Jackson Ave., Ogden.
Jorgensen, Cecil L., Capt., 2528 Harrison Blvd., Ogden.
Noall, Wendell, Major, 385 24th St., Ogden.
Rich, Junior E., Lt. Col., 1453 Marilyn Dr., Ogden.

Vermont

Abajian, John Jr., Major, Burlington.
Calcagni, Oscar H., Major, Lower Main St., Morrisville.
Magner, John P., Capt., 51 Prospect St., Rutland.
O'Neil, James P., Capt., 131 Bank St., Burlington.
Powers, Michael F., Lt. Col., 47 Atkinson St., Bellows Falls.
Pratt, Henry L., Capt., 24 Pine St., Rutland.
Waterman, William M., Capt., 14 Pine St., Windsor.

West Virginia

Bandi, Robert T., Capt., 2320 Eoff St., Wheeling.
Butterfield, Donald L., Capt., Ft. Hill Dr., RD 2, Charleston.
Calvert, Robert L., Capt., Maple Apts., Huntington.
Dodson, Ross, Capt., 134 9th Ave., West Huntington.
Hedrick, Grover C. Jr., Capt., 1545 Harper Rd., Beckley.
McCann, Harold F., Capt., 137 Jackson Ave., Clarksburg.
Main, Emory H., Capt., Philippi.
O'Dell, Richard N., 1st Lt., Box 949, Belle.
Pace, Lawrence J., Capt., 112 Circle Dr., Princeton.
Quick, James C., Capt., Box 416, Clendenin.
Statts, Charles E., Capt., 210 Wyoming St., Charleston.
Whelan, Joseph D., Major, Wheeling.

Wyoming

Batterton, Robert V., Col., 10 Osborne Bldg., Rawlins.
Burich, Fred T., Capt., 209 Grand Ave., Laramie.
Mitchell, Henry S., Major, Vet. Adm. Facility, Sheridan.
Pennoyer, Willard H., Major, 2020 Carey Ave., Cheyenne.
Plummer, Orlay E., Major, 118 E. Pine St., Rawlins.

Puerto Rico

Diez-Gutierrez, Emilio, Capt., Orocovis.
Martinez, Hector A., Major 52 Park St., Santurce.
Robert, Jose L., Capt., 252 Ponce de Leon Ave., Santurce.
Sanjurjo, Luis A., Major, McCormick Ave. No. 1, Hato Rey.

CHANGES

Boykin, James M., Lt. Col., Taft, Texas. Reported on list 10-19-45. Recalled to active duty with Vet. Adm.

Liberman, David L., Major, Vet. Adm. Facility, Wood, Wis. Reported on list 12-28-45. Was not relieved from active duty.

Lowenstein, Bernard, Major, Tacoma Indian Sanat., Tacoma, Wash. Reported on list 12-21-45. Recalled to duty with Vet. Adm.

McCann, Ezelle, Major, 3195 Spottswood Ave., Memphis, Tenn. Reported on list 12-28-45. Was not relieved from active duty.

McCormick, Charles O., 1st Lt., 4041 Washington Blvd., Indianapolis, Ind. Reported on list 10-19-45. Was not relieved from active duty.

Munns, Thomas A., Major, RFD 1, Oxford, Ohio. Reported on list 12-21-45. Recalled to active duty with Vet. Adm.

Skelley, Leo C., Major, 2226 N.W. Hoyt St., Portland Oregon. Reported on list 11-30-45. Recalled to active duty with Vet. Adm.

MEDICAL OFFICERS RELEASED BY THE NAVY

NAVAL RESERVE MEDICAL OFFICERS RECOMMENDED FOR RELEASE FROM ACTIVE DUTY

Alabama

Eichold, Samuel................Mobile
Frazer, Emmett B..............Mobile
Grayson, Richard J..............Selma
O'Gwynn, John C., Jr............Mobile
Woods, Arthur W.........Birmingham

Arizona

Condon, Daniel J...............Phoenix
Haines, Ronald S...............Phoenix
Hicks, Robert A..................Tucson
Lentz, Joseph S.................Phoenix
Kelley, Orville R.................Phoenix
Smith, William J..................Phoenix
Storts, Brick P., Jr.............Tucson
Williams, Henry G..............Phoenix

Arkansas

Beasley, Joseph E...........Blytheville
Higgins, Homer A...........Little Rock
Price, Thomas G.................Wynne
Rainwater, Elmer H.........Little Rock
Raley, Burch V.............Little Rock
Shipp, David H..............Little Rock
Wharton, Joseph B., Jr.......El Dorado

California

Achenbach, Louis W...........Ventura
Adams, John E.................Piedmont
Allegrini, Anthony E.........Santa Cruz
Allington, Herman V...........Oakland
Anderson, Emory H.............Oakland
Anderson, Frank R............Campbell
Awtrey, Hugh H.........San Francisco
Barber, Philip S..............Porterville
Barmore, Merrill G.............Whittier
Berger, Adolphus A.......San Francisco
Bishop, Harry A.............Bakersfield
Bissell, Arthur D.........Santa Barbara
Boggs, Robert W..............St. Helena
Boylan, Richard N.............Riverside
Browning, George L.........Sacramento
Budd, John W.............Los Angeles
Burke, George T............San Marino
Caruso, Tenero D..........Los Angeles
Cassell, Irving...................San Jose
Chapman, James L..........Los Angeles
Childress, Max E.........San Francisco
Coates, Gaines L................Martinez
Copeland, Edwin K...........Woodland
Crank, Henry H.................Oakland
Cullen, Edward R..........Long Beach
Daniels, Arthur G., Jr........South Gate
Day, Proctor W..............Berkeley
Delphey, William E.........San Marino
Dickson, James D..........Santa Monica
Dietderich, Clifford E..........Crockett
Doane, Clarmont P.............Fresno
Due, Floyd O..................Alameda
Duggan, Willia T.........San Francisco
Dunbar, William V...Sunnyside Terrace
Easley, Clifford E..............Torrance
Elerding, George W.........Los Angeles
Ellik, Milo.................Long Beach
Fabian, John P....................Chico
Fletcher, Charles D........San Francisco
Fox, Leon P...................San Jose
Fricke, John W..........San Francisco
Gaede, Menno S...............Reedley
Garfield, F. Edwyn.......San Francisco
Garrett, Robert L.........San Francisco
Gasteiger, Ernest S.........Los Angeles
Gazzaniga, Dante A............Glendale
Gilman, Carl J...................Vallejo
Gurdin, Michael M...........Hollywood
Hannebaum, Otto P........Los Angeles
Harrington, David O......San Francisco
Harsh, George F.............San Diego
Hartman, Joyce I.............Palo Alto
Harwood, Chadron M.........Santa Ana
Hause, Edward E.........San Francisco
Henderson, Wayne B.........San Diego

California—Continued

Hensler, Harry N.................Ross
Hogan, Michael J.........San Francisco
Holm, Bernard S.........San Francisco
Hromadka, John B........Santa Monica
Humphrey, Wendell H..........Piedmont
Hunt, William R.........Santa Barbara
Jensen, Herman H............Oakland
Jensen, Oliver B.............Livermore
Johnston, William R......Santa Barbara
Josephs, Irving L...........Los Angeles
Kaftan, Ludwig L...........Los Angeles
Kellogg, Pearson C..........Sacramento
Kennedy, George R............Pasadena
King, Ralph M..................La Mesa
Lachman, George S.......San Francisco
Laird, Terry T............San Anselino
Lawry, Edwin V..............Palo Alto
Leake, William H.........Beverly Hills
Loughlin, Edward L.......Frazier Park
Lyons, Harold M.........San Francisco
Lytle, Howard W...............Gilroy
MacCracken, William B........Berkeley
McDermott, Alza M.........Hollywood
McKinley, Elmer M.....San Luis Obispo
McNamara, Thaddeus M.....Bakersfield
Mahon, Edmund J.........San Francisco
Mainwaring, George F..........Orinda
Maurer, Robert D..................Tracy
Melkonian, Leon..................Gilroy
Merchant, Edward B., Jr.......Pasadena
Miller, Alden H............Los Angeles
Morris, Raymond L.......San Francisco
Morrison, Gordon M.........San Mateo
Murphy, William R.........Sacramento
Nay, Newell...........San Luis Obispo
Newman, William W......San Francisco
Ohanneson, John................Alameda
Olds, John W.................San Diego
Paine, Norman C..............Glendale
Parker, Fenton..................Oakland
Person, Edward C..............San Diego
Petrilli, Alexander........San Francisco
Pletta, Frederick A............Berkely
Quigley, John S...............Piedmont
Rahn, Paul C.............San Leandro
Rambo, William H..........Los Angeles
Rees, Charles W..............San Diego
Rixford, Emmet L........San Francisco
Ross, Rex L., Jr.....Belair, Los Angeles
Rover, Henry P............Long Beach
Rumph, Paul E..................Orange
Ryan, Clark D.............Los Angeles
Saverien, Arnold E.........Los Angeles
Sbarbaro, Victor E............Oakland
Scott, Raymond R..................Selma
Searls, Henry H.........San Francisco
Sheehan, William J.......Santa Barbara
Sideman, Sidney............Los Angeles
Singleton, Paul C. A......San Francisco
Smith, Lawrence E..............Merced
Smith, Seymour P........San Francisco
Spitalny, Gus............San Francisco
Stufflbam, Henry M..............Salinas
Stufflebam, Henry M.............Salinas
Sumerlin, Harold S............San Diego
Swasey, Lloyd K...............San Diego
Thebaut, William M., Jr........Oakland
Thomas, Joseph W............San Diego
Truax, Harmon D............Alhambra
Vedder, James S.............San Diego
Vidricksen, Harry L.............Weed
Von Christierson, Sigurd........Salinas
Wagner, Vincent E...........San Dimas
Wagner, William F.......San Francisco
Welbourn, Leland S...........Van Nuys
Whalen, Thaddeus J.......San Francisco
Wilson, John C................San Jose
Wood, John A..................Anaheim
Woodworth, Philip R......Sierra Madre
Wright, Kenneth D.......Santa Monica
Zieber, Roscoe L...........Santa Rosa

Colorado

Bennett, Everett E.......Grand Junction
Caldwell, Calvin N...............Pueblo
Crouch, Winthrop B....Colorado Springs
Noonan, Richard L..........Walsenburg
Singer, David....................Denver
Tanner, Gordon W..............Denver
Weinstein, Sidney S.............Denver

Connecticut

Bates, Davis H..............Woodstock
Beauchemin, Joseph A........Middletown
Bingham, Charles T.......West Hartford
Bloom, David I...........Thompsonville
Cullen, James R................Hartford
Dorian, Robinson H...........Stamford
Fenney, Philip W...........New Haven
Gibson, Donald F..............Danbury
Giuffrida, Francis..............Meriden
Gulash, John R..............Bridgeport
Hertzberg, Reinhold F.........Stamford
Leonard, Robert J.............Hartford
Lindskog, Gustaf E..........New Haven
McLellan, Philip G.........W. Hartford
McMahon, George W.......New Britain
Mahoney, Patrick J............Norwich
Miller, Hugh K................Stamford
Nespor, Robert W.............Westport
O'Connell, William M.......West Haven
O'Connor, Dennis S..........New Haven
Rentsch, Samuel B................Derby
Schmidt, Norman L............Stamford
Shulman, David N.............Hartford
Smith, Edward R...............Meriden
Taylor, Hoyt C.................Norwich
Thompson, Sidney A..........Greenwich
Trapp, Francis W..........Southington
Twachtman, Eric..........New Canaan
Weigle, Luther A., Jr.......W. Hartford
Wells, John B..................Hartford
Wilson, William A.......West Hartford
Wilson, William R..............Ansonia
Wray, Edward H., Jr..........Litchfield

District of Columbia

Cavanaugh, John R.........Washington
Chinn, Raymond F..........Washington
Cleveland, William H.......Washington
Hawken, Stafford W.........Washington
Hoffman, Herman S..........Washington
Hummel, Merwin L..........Washington
Mirick, George S...........Washington
Mitchell, Reginald H........Washington
Pagan, Albert E.............Washington
Sager, William W............Washington
Sandler, Isadore L...........Washington
Wildebush, Frank F.........Washington

Florida

Allan, Harry L., Jr..........Fort Myers
Baldwin, Donald M..........Jacksonville
Boles, Arthur E...................Miami
Bowen, Frederick H.........Jacksonville
Clark, Irving T..........Chattahoochee
Coplan, Milton M.................Miami
Hixon, William P..............Pensacola
Jewett, Eugene L...............Maitland
Jones, Carroll B.....New Smyrna Beach
Kells, Paul........................Miami
Kuckku, Morris E.................Miami
Leonard, George N..........Miami Beach
Lipscomb, Thomas H.......Jacksonville
Lupmkin, Lloyd U.......Fort Lauderdale
McNeill, Clyde.................Pensacola
Oliver, Robert M..................Miami
Quillian, Warren W.........Coral Gables
Rutter, Joseph H..........Dayton Beach
Taylor, Byrne E.................Orlando
Turner, Arthur F., Jr.........Jacksonville
Widmeyer, Robert S.........Petersburg
Woods, Frank M....................Miami
Wylie, LeRoy A.........St. Petersburg

MEDICAL OFFICERS RELEASED BY THE NAVY

Georgia

Allen, Charles E.	Atlanta
Allgood, Jackson L., Jr.	Atlanta
Dallas, Robert E.	Thomaston
Davis, Robert C.	Atlanta
Dorough, Warren S.	Atlanta
Harris, Herschel B.	Athens
Hitchcock, John P.	Atlanta
Jardine, Dan A.	Douglas
Jernigan, Henry W.	Atlanta
Johnson, Roy J., Jr.	Atlanta
McCoy, John F.	Atlanta
Murray, Samuel D.	Atlanta
Sanders, Atticus S.	Atlanta
Walker, Exum B.	Atlanta

Illinois

Addenbrooke, Edward F.	Winnetka
Alden, Herbert S.	Chicago
Ball, Wilbur G.	Bloomington
Bartelson, Raymond E.	Chicago
Baxter, Raymond E.	Bloomington
Behrens, William H.	Belleville
Benjamin, Eustace L.	Evanston
Bothe, Russell T.	Aurora
Boyd, John R.	Oak Park
Caddick, Richard P.	Quincy
Conley, Thomas J.	Chicago
Copeland, William J.	Cary
Crawford, Ray F.	Chicago
Danahy, John C.	Highland Park
Deplewski, Leo M.	Chicago
Diffenderfer, Ralph E.	Blue Island
Edwards, Robert W.	La Grange
Engelbach, Hermann F.	Jacksonville
Finkelman, Isadore	Chicago
Friedman, Townsend B.	Chicago
Jacobson, Max M.	Chicago
Kahler, Maurice V.	Chicago
Kaske, Gordon J.	Belvidere
Kruckenberg, William G.	Elgin
Kullman, Paul J.	Chicago
Harris, Leonard H.	Chicago
Irwin, Francis G.	Decatur
Langdon, Roy M.	Chicago
Lenth, Vincent T. J.	Jacksonville
Lorance, Luther M.	Chicago
McCullough, Clifford P.	Lake Forest
McGuigan, Robert A.	Evanston
McVety, Thomas W.	Decatur
Malcolm, William A.	Peoria
Milles, George	Oak Park
Morris, Louis C.	Chicago
Mosny, Emil K.	Charles
Newcomb, Alvah L.	Wilmette
Olson, Franklin A.	Chicago
Overby, Rudolph W.	Chicago
Perlow, Samuel	Chicago
Poliak Percy P.	Chicago
Renz, Theodore H.	Watseka
Roberts, Joseph M.	Chicago
Shapiro, Irving J.	Aurora
Sharrer, Gerald L.	Bloomington
Sloan, Howard P.	Blue Island
Smith, Kenneth J.	Chicago
Solomon, Samuel Jr.	Vandalia
Stanbery, George A.	Chicago
Stimson, Horace P.	Chicago
Sullivan, Samuel J.	Chicago
Theis, Frank V.	Elgin
Thelen, Leo L.	River Forest
Van Verst, Paul H.	Evansville
Vermeren, John C.	Chicago
Wall, John W.	

Indiana

Appel, Richard H.	Indianapolis
Ayres, Wendell W.	Hartford City
Buchanan, Wallace D.	Bremen
Clements, Albert F.	Evansville
Cullen, Paul K.	Indianapolis
Day, William D. C.	Seymour
De Motte, Russell A.	Bloomington
Donovan, Stephen J.	Michigan City
Drake, John C.	Anderson

Indiana—Continued

Dyar, Edwin W., Jr.	Indianapolis
Flack, Russell A.	Lafayette
Hawk, James H.	Indianapolis
Hill, Robert P.	Bloomington
Hoopes, Benjamin F.	Bloomington
Lamey, Paul T.	Anderson
Litzenberger, Sam W.	Anderson
MacKenzie, Pierce	Evansville
Morrison, David "A"	Kokomo
Need, Louis T.	Indianapolis
Phares, Robert W.	Muncie
Phillips, John R.	Michigan City
Roser, Arthur J.	Fort Wayne
Rubin, Gerald S.	Indianapolis
Spangler, Jesse S.	Kokomo
Stamper, Joseph H.	Middletown
Stangle, William J.	Mooresville
Stier, Paul L.	Fort Wayne
Stoeffler, Walter	Indianapolis
Walker, Robert K.	Indianapolis

Iowa

Andersen, Bruce V.	Greene
Burroughs, Hubert H.	Sioux City
Butts, John H.	Waterloo
Clark, George H.	Oskaloosa
Cooper, Clark N.	Waterloo
Cross, Donald L.	Coon Rapids
Crossley, James L.	Waterloo
Decker, Henry G.	Des Moines
Elmquist, Homer S.	Iowa City
Frank, Louis J.	Sioux City
Greenlee, Max R.	Oskaloosa
Harris, Dallas D.	Des Moines
Havlik, Aloysius J.	Tama
Heise, Carl A., Jr.	Missouri Valley
Jones, Clare C.	Spencer
Kelley, Edmund J.	Des Moines
Kieck, Ernest G.	Cedar Rapids
Kluever, Herman C.	Fort Dodge
Knight, Russell A.	Rockford
Kulowski, Jacob	Iowa City
Larsen, Harold T.	Fort Dodge
Larson, Lester E.	Decorah
Lenaghen, Robert T.	Clinton
Lovejoy, Elijah P.	Des Moines
McFarland, Julian E.	Ames
McNamee, Jesse H.	Des Moines
Marble, Edwin J.	Marshalltown
Miller, Oscar H.	Estherville
Miner, James B., Jr.	Charles City
Nelson, Carrol C.	Red Oak
Netolicky, Robert Y.	Cedar Rapids
Olson, Paul F.	Dubuque
Parish, John R.	Grinnell
Patterson, Roy Ad.	Webster City
Powell, Lester D.	Des Moines
Proctor, Rothwell D.	Cedar Rapids
Rankin, John R.	Keokuk
Smith, Herman J.	Des Moines
Sperow, Wendell B.	Nevada
Treynor, Jack V.	Council Bluffs
Williams, Robert L.	Lakota

Kentucky

Black, Sam H.	Lebanon
Buskirk, Joseph R.	Louisville
Campbell, John D.	Louisville
Clark, Garland H.	Winchester
Coleman, Robert M.	Frankfort
Combs, Arnold B.	Lexington
Costigan, Daniel G.	Louisville
Doughty, Richard E.	Louisville
Edelen, Charles M.	Louisville
Hemphill, Stuart P.	Danville
Hurst, Arthur T.	Louisville
Newman, John S.	Somerset
Paris, Samuel E.	Brownsville
Scott, Thornton	Lexington
Strode, Robert E.	Winchester
Toomey, Lawrence O.	Bowling Green
Townsend, John Mc.	Louisville
Walsh. Maurice R. F.	Covington
Weber, Melvin J.	Ludlow

Louisiana

Brierre, Joseph T.	New Orleans
Bounds, Lemann H.	New Orleans
Cook, William H.	Baton Rouge
Crawley, Robert J.	New Orleans
Fershtand, John A. B.	Tallulah
Glass, Thomas A., Jr.	Shreveport
Goldfarb, Paul M.	New Orleans
Houston, Arthur N.	New Orleans
Hume, Charles R.	New Orleans
Pargen, Thomas H.	Baton Rouge
Renken, Paul W.	New Orleans
Small, Milton B.	Kentwood
Smith, Earl C.	New Orleans
Street, Richard M.	Slidell
Witter, Howard B.	Baton Rouge

Maine

Cobb, Norman E.	Calais
Drake, Eugene H.	Portland
Hoyle, Christian K. C.	Kittery
Lathbury, Vincent T.	Augusta
Nesbitt, Lester R.	Bucksport

Maryland

Case, Jarvis D.	Bethesda
Christensen, Thomas A.	College Park
Conley, Charles H., Jr.	Frederick
Davidson, Nachman	Baltimore
Franz, John H.	Baltimore
Gibb, William T., Jr.	Kensington
Goldberg, Herman K.	Baltimore
Johnson, Marion W.	Salisbury
Maumenee, Alfred E.	Baltimore
Newman, Alpheus C., Jr.	Easton
Parsons, John W.	Baltimore
Pessagno, Daniel J.	Baltimore
Peters, Erwin E.	Baltimore
Raffel, William	Baltimore
Reisinger, John A.	Chevy Chase
Reynolds, Frank W.	Baltimore
Smith, Frank R., Jr.	Salisbury
Strauss, Clifton J.	Hyattsville
Whaley, Thomas B.	Princess Anne
Zinberg, Israel S.	Baltimore

Massachusetts

Allen, Edward C.	Melrose
Bernier, Leo J.	Holyoke
Boisseau, David W., Jr.	Boston
Butts, John B.	Worcester
Carleton, William T.	Worcester
Carr, William M.	Whiteman
Cordes, Warren P.	Northampton
Crandon, John H.	Boston
Daniels, James T., Jr.	Brookline
Elia, Andrew D.	Boston
Flanagan, Norris B.	Squantum
Freedman, Solomon S.	Lowell
Gardner, Stuart N.	Salem
Gilbert, Henry R.	Needham
Glickman, Alfred M.	Springfield
Goldblatt, Harold W.	Lawrence
Golden, Sherman E.	Beverly
Hagan, Newell S.	Canton
Hawkey, Alfred S.	Newton
Holt, William L., Jr.	Westboro
Hood, Wilfred T.	Brighton
Hoover, Harold R.	Boston
Hulse, Herbert J.	Rockland
Hunter, Francis T.	Chestnut Hill
Jacobson, Bernard M.	Newtonville
Kane, Theodore J.	Everett
Kevorkian, Albert Y.	Chestnut Hills
Lanigan, William N.	Medford
La Palme, Joseph A.	Webster
McCarthy, Lawrence J.	Worcester
McCarthy, Thomas F.	Lowell
Miles, George S.	Somerville
Monks, John P.	Lincoln
Montag, Paul P.	Worcester
Ockert, Raymond G.	Mansfield
Piper, Frank J.	Framingham
Richards, Lyman G.	Wellesley Hill
Ryan, Earl F.	Maynard

MEDICAL OFFICERS RELEASED BY THE NAVY

Massachusetts—Continued

Scelso, Salvatore	Boston
Scarcello, Nicholas S.	Worcester
Shaw, Elmer A.	Brockton
Stein, Calvert	Springfield
Sturgis, George P.	Brookline
Swan, Channing S.	Weston
Thornton, Joseph P.	Dorchester
Toumey, James W.	Dedham,
Vance, Lewis A.	Wellesley Hills
White, Edward P.	Dorchester
Worcester, John	Brookline
Yandell, Hays R.	Princeton

Michigan

Ackerman, Gerald L.	Saginaw
Amos, Norman H.	Battle Creek
Berman, Sidney	Detroit
Bermel, John M.	Detroit
Biggar, Robert J.	Port Huron
Bryce, John D.	Detroit
Capron, Manley J.	Battle Creek
Conti, Joseph B.	Petoskey
Defever, Cyril R.	Detroit
Drewyer, Glenn E.	Flint
Dwyer, Francis W.	Detroit
Fremont, Joseph C.	Detroit
Gillard, James L.	Muskegon
Kozlinski, Anthony E.	Detroit
Kullman, Harold J. F.	Detroit
Lambert, Warren Charles	Marquette
Le Duc, Don M.	East Lansing
McIntyre, Charles H.	Kalamazoo
MacPhail, Joseph C.	Bay City
Miller, J. Duane	Grand Rapids
Oldham, Earle S.	Detroit
Osius, Eugene	Detroit
Rice, John W.	Sturgis
Rogers, Thurmän M.	Jackson
Russell, Vincent P.	Pleasant Ridge
Sander, John F.	E. Lansing
Sawyer, Walter W.	Hillsdale
Sheldon, Suel A.	Saginaw
Slagle, George W.	Battle Creek
Stucker, Fred J.	Bangor
Tamblyn, Frederick W.	Lansing
Tiedke, Gunther E.	Saginaw
Vary, Edwin P.	Flint
Watson, Thomas Y.	Birmingham
Webber, Jerome E.	Grand Rapids

Minnesota

Arlander, Clarence E.	Minneapolis
Buchstein, Harold F.	Minneapolis
Butzer, John A.	Mankato
Cain, Clark L.	St. Paul
Camp, John D.	Rochester
Christopherson, Joseph E.	Virginia
Clark, Daniel M.	Brainerd
Cochrane, Ray F.	Minneapolis
Duff, Edwin R.	Minneapolis
Fellows, Manley F.	Duluth
Giesen, Allan F.	Starbuck
Gouze, Frank J.	Duluth
Gowan, Lawrence R.	Duluth
Gray, Howard K.	Rochester
Hammerstad, Lyn M.	Minneapolis
Johnson, Harry A.	Edina
Johnson, Karl E.	Duluth
Kent, Richard N.	Rochester
Lauer, Dolor J.	St. Paul
McCarthy, Donald	Minneapolis
MacKinnon, Donald C.	Minneapolis
MacLean, Alexander R.	Rochester
Ogden, Warner	St. Paul
Olson, Chester J.	Belle Plain
Patterson, Hugh D.	Anoka
Roemer, Henry J.	Winona
Samson, Emmett R.	Stillwater
Swenson, Arnold O.	Duluth
Walters, Waltman, Mayo Clinic	Rochester
Watson, Sidney W.	Royalton
Wells, Walter B.	Jackson
Widen, Wilford F.	Hopkins
Wilson, John A.	St. Paul

Mississippi

Blaine, James G.	Jackson
Brown, Arthur E.	Columbus
Criss, Ralph J., Jr.	Coffeeville
Flynt, Roger M.	Meridian
Hand, William F.	Jackson
Klaus, A. Walden	Greenville
Levy, Louis K., Jr.	Canton
McClanahan, Hick H., Jr.	Columbus
Stowers, William K.	Natchez
Wilson, Thomas E.	Jackson
Woodruff, Paden A.	Gulfport

Missouri

Bagby, James W.	University City
Bassett, Robert B.	St. Louis
Beal, Homer A.	Kansas City
Benjamin, Durand	St. Louis
Brown, Seymour	St. Louis
Buhler, Victor B.	Kansas City
Comboy, Lawrence J.	Independence
Diehr, Maurice A.	St. Louis
Dorsey, John W.	Kansas City
Gaines, Quentin M.	Kirkwood
Grantham, Samuel A., Jr.	Joplin
Hardv, Guerdan	St. Louis
Johnson, Richard E.	Kansas City
Jostes, Frederick A.	Florissant
Landau, Daniel B.	Hannibal
Langhus, Melvin O.	Kansas City
MacNish, James M.	Webster Grove
Marmor, William A.	Clayton
May, James W.	Kansas City
Meador, James R.	Clayton
Mistachkin, Norman L.	Univ. City
O'Neill, James R.	Kansas City
Pardoll, Davis H.	Poplar Bluff
Powers, William L.	St. Louis
Robinson, Ernest K.	Kansas City
Robinson, George W., Jr.	Kansas City
Roche, Maurice B.	St. Louis
Ryan, Maurice J.	Kansas City
Schaerrer, William C.	Kansas City
Schutz, Richard B.	Kansas City
Staehle, Melvin E.	St. Louis
Taylor, Leon A.	Jefferson City
Walker, Paul W.	Joplin
Weber, William K.	Normandy
Willhelmy, Ellis W.	Kansas City
Ziegler, Allen M.	Kansas City

Montana

Hale, Donald E.	Butte

Nebraska

Arnsten, Lester L.	Omaha
Gibson, Luther V.	Lincoln
Gray, Richard W.	Lincoln
Klok, George J.	Omaha
Martin, Samuel F.	Lincoln
O'Brien, Donald J.	Omaha
Redgwick, John P.	Omaha
Royal, Paul A.	Lincoln
Smith, Thomas T.	Omaha
Stewart, Frank A.	Edgar
Wengert, Darwin B.	Fremont
Wright, Willis D.	Omaha

New Hampshire

Harrington, Walter J.	Manchester
Miller, Gerard R.	Loconia
Munro, Burton S.	Berlin
Murphy, Richard L.	Manchester
Olmstead, Shirley H.	Plymouth
Robertson, Norris H.	Keene
Sullivan, Daniel J.	Nashua

New Jersey

Anderson, William A.	Bloomfield
Barnard, Frank G.	Montclair
Barnshaw, Harold D.	Merchantville
Benjamin, Joseph F.	Ridgewood
Blaisdell, Charles B.	Long Branch

New Jersey—Continued

Brown, Stanley L.	Laurel Springs
Connell, Emmet J.	Jersey City
Coppoletta, Joseph M.	River Edge
Coughlin, John P.	Jersey City
Cuono, Joseph D.	Palisade
Eddy, Lester R.	Sussex
Gibbins, Albert L.	Newark
Gilmour, John R.	E. Orange
Glass, William H.	S. Orange
Glassner, Frank	Roselle
Goldman, Jerome	Maplewood
Goldsmith, Alfred S.	N. Bergen
Goldstein, Marvin B.	Newark
Hebble, Howard M.	Moorestown
Higi, Joseph E.	Newark
Holster, Stephen G.	Paterson
Hubbard, Samuel T., Jr.	Hackensack
Hyman, LeRoy J.	Asbury Park
Insel, Herman H.	Montclair
Johnson, Herbert F.	Collingswood
Johnston, Sidney F.	Rochelle Park
Klein, Edward C., Jr.	E. Orange
Kurtz, Gerald I.	Paterson
Lawless, Edward T.	E. Orange
Lucey, James J.	Perth Amboy
Lynch, Edward T.	Elizabeth
McCarthy, John J.	N. Bergen
McCarthy, John J.	Bergen
MacGovern, Thomas F.	South Orange
Magee, Edward S.	Haddonfield
Manson, William W.	E. Orange
Marquis, Dean W.	Short Hills
Nicholson, Jesse T.	Haddonfield
O'Connor, Paul A.	Newark
Orton, Foster	Rahway
Paul, Hugh C.	Caldwell
Prince, Robert A.	Paterson
Rapp, Michael S.	Passaic
Reich, Henry	Newark
Ryan, Eric J.	Saddle River
Shapiro, Ralph N.	Newark
Sharp, Reuben L.	Moorestown
Shope, Richard E.	Kingston
Snagg, William T.	Haddonfield
Sobol, Herman	Newark
Ter Kuile, Reinold W.	Ridgewood
Utkewicz, Edmond A.	Jersey City
Van Orden, Thomas D.	Pompton Lakes
Wescoat, George N. A.	Moorestown
Wheeler, William K.	Roselle

New Mexico

Duff, Percival A.	Albuquerque
Hack, Rudolf W.	Raton
Johnson, Broor A.	Santa Rita
Marcley, David M.	Las Cruces

New York

Abelson, Louis	New York
Ambrusko, John	N. Tonawanda
Arkwright, Richard M.	Huntington
Bailey, Frederick R.	New York
Baker, Daniel C. Jr.	New York
Bates, Rolland C.	Binghamton
Benauer, Mortimer B.	Tompkinsville
Boller, Charles	Rochester
Breese, Burtis Burr, Jr.	Rochester
Brittain, Knox	Spencerport
Brondum, Howard W.	Brooklyn
Bush, Frederick W.	Rochester
Cameron, Dwight	Manor
Chapin, Sidney E.	New York
Chasserot, Harry L.	New Rochelle
Cione, Victor D.	Brooklyn
Coates, William A.	Babylon
Conner, James F.	Rochester
Console, William A.	Brooklyn
Curtis, John K.	New York
De Julio, Nicholas J.	Brooklyn
Deuell, William D.	New York
deVeer, James A.	W. Williston
Dillenberg, Stanley M.	Larchmont
Dillon, Emerson D.	Phoenix
Dixon, Thomas W.	Brooklyn

MEDICAL OFFICERS RELEASED BY THE NAVY

New York—Continued

Earl, Charles A.	Oneida
Edmunds, Stanley L.	Glens Falls
Evans, William W.	New Rochelle
Ferris, Henry W.	Ithaca
Fleischer, Abraham J.	Concourse
Fox, Frank E.	Fulton
Gaynor, Sidney S.	New York
Genovese, Pasquale D.	Astoria
Gildea, Alfred R.	Rochester
Gudger, James R.	New York
Halpern, Leonard E.	New York
Hammond, Jack	Bronx
Heck, Charles C.	Rochester
Henley, Thomas F.	New York
Hogeboom, Willard L.	Helmuth
Huntington, Robt. W., Jr.	Hastings-on-Hudson
Ide, Arthur G.	Rochester
Jacobs, Sherman R.	Oneonta
Kane, John T.	Birmingham
Keller, Donald R.	Westhampton Beach
Kemp, Walter W.	Great Neck
Kiernan, Raymond F.	New Rochelle
Kimball, Cyril V.	Hammond
Lavine, William	Syracuse
Lerner, Peter S.	Sayville
Levine, Alexander	Brooklyn
Louis, Marshall R.	Rochester
Lusskin, Harold	New York
MacArt, James H.	S. Orange
McMahon, Daniel P.	Buffalo
McMahon, Henry E.	Plandome
Martin, George G.	Buffalo
Miano, Lawrence J. A.	Gardenville
Millar, Russell A.	Williston Park
Mills, Harry L.	Governeur
Moscarella, Alfred S.	Spring Valley
Moynahan, Brian St. John	Brooklyn
Murphy, Willis A.	New York
Nadler, Jacob E.	Jackson Heights
Nickel, William F., Jr.	New York
Norton, Manville W.	New Rochelle
Owen, Joseph W.	New York
Patterson, Ezeral J.	Richmond Hill
Phelan, William J.	Troy
Platt, Edward S.	Auburn
Reed, William P.	Larchmont
Rommel, Jacob F.	Oneida
Russell, Theodore B.	New York
Ryan, Martin J.	Harrison
Sandler, Charles	New York
Sanger, Grant	New York
Schneierson, Sol S.	New York
Sheldon, John H.	Glen Falls
Shick, Simon L.	Richmond Hill
Snyder, Eugene R.	New York
Stamatis, Leon	Brooklyn
Stapleton, Michael J.	Albany
Stein, Ignatius L.	Bayville
Syverton, Jerome T.	Rochester
Twiss, John R.	New York
Ulmar, David	New York
Vicale, Carmine T.	New York
Voss, Harry E.	Scarsdale
Warden, Cyrus E.	Amityville
Webber, Joseph T.	Brooklyn

North Carolina

Ayers, Sanford E.	Durham
Barringer, Archibald L.	Mt. Pleasant
Byrnes, Thomas H.	Charlotte
Chadwick, William S.	Beaufort
Chiles, George G.	Sanford
Crosby, Frank H.	Charlotte
Doty, George E., Jr.	Bismarck
Fox, Herbert J.	Durham
Kendrick, Charles M.	Lenoir
Pearse, Richard L.	Durham
Roberson, Edward L.	Tarboro
Robertson, Edwin Mason	Durham
Schulman, Nat J.	Jacksonville
Stanbury, John B.	Winston-Salem
Turrentine, Kelby P.	Kinston
Van Nortwick, William A.	Greenville

Ohio

Alter, Francis W., Jr.	Toledo
Anderson, John B.	Cleveland
Atkins, Harry T.	Cincinnati
Bannister, William K.	Lima
Bolin, Joseph B.	Norwood
Bunner, Daniel S.	Columbus
Burkhardt, Stanley L.	Cincinnati
Cassady, Harold A.	Cincinnati
Castle, Gerald H.	Cincinnati
Crawford, Robert R.	Mansfield
Culler, Arthur M.	Dayton
Day, George T.	Shaker Heights
Dinardo, Charles J.	Shaker Hts.
Evans, William H.	Youngstown
Fleming, John G.	Cincinnati
Friedman, Edward	Cincinnati
Gallagher, John F.	Steubenville
Glomb, Albert M.	Rocky River
Gowan, Robert E. L.	Bigby
Grollman, Aaron I.	Cincinnati
Hamilton, William S.	Norwood
Henderson, William S.	Akron
Hildebrand, Roy D.	Newcomerstown
Hise, Fred R.	Canton
Hosking, Frederick S.	Lakewood
Hurless, Laurel B.	Dayton
Huston, Harry R.	Dayton
Huth, Paul O.	Cambridge
James, David C.	E. Cleveland
Johnson, Davis M.	Columbus
Kidd, Robert A., Jr.	Columbus
Lawton, Orval M.	Youngstown
Lehrer, Henry G.	Wadsworth
London, McKinley	Cleveland Heights
Lyons, William F.	Delaware
McNemer, Philip H.	Cleveland
Mikes, Frank L.	Garfield Heights
Norcross, Nathan C.	Toledo
Osgood, Frederick P.	Toledo
Park, Benjamin S.	Painesville
Ramey, William O.	Cincinnati
Renner, John A.	Youngstown
Reul, Thomas W.	Lima
Roberts, John L.	Toledo
Rowland, Guy A.	Cleveland Heights
Ryan, Edward J.	S. Euclid
Sagebiel, James L.	Dayton
Schneider, Harold O.	Cleveland
Shaper, Aaron A.	Cincinnati
Shrader, Albert M.	Waverly
Slivka, James E.	Cleveland
Smith, John F.	Montpelier
Solt, Robert L.	Bucyrus
Spisak, Edward A.	Shaker Heights
Shane, Edwin S.	Circleville
Sheets, Maurice V.	Newcomerstown
Stimson, George A.	Sandusky
Taggart, Wallace B.	Dayton
Tildes, John H.	Lakewood
Walker, Malcolm E.	E. Cleveland
Ward, Charles F.	Cleveland
Wilson, Judson D.	Columbus
Winter, Sherl J.	Dayton
Worstell, Henry P.	Columbus

Oklahoma

Branham, Donald W.	Oklahoma City
Coley, Joe H.	Oklahoma City
Evans, Alfred M.	Perry
Henry, Gifford H.	Tulsa
Pinholster, John H.	Oklahoma City
Puckett, Howard L.	Stillwater
Ray, Raymond G.	Tulsa
Sisler, Franklin H., Jr.	Bristow
Smith, Roy L. O.	Tulsa
Spann, Logan A.	Tulsa
Wainwright, Tom L.	Oklahoma City
Wright, Lennel I.	Blackwell

Oregon

Bueermann, Winfred H.	Portland
Chisholm, William P.	Lakeview
Dixon, Henry H.	Portland
Frazier, William R.	Portland

Oregon—Continued

Haun, James J. D.	LaGrange
Hughes, John E.	Portland
Hutchens, Wendell H.	Portland
Jones, Lester T.	Portland
Jones, Raymond F.	Redmond
Kabeiseman, Francis J.	Hillsboro
Keane, Roger H.	Portland
Kelsey, Walter L.	Portland
Landers, Ellery L.	Joseph
McArthur, Robert L.	Portland
Millett, George W.	Portland
Mitchell, Edward	McMinnville
Ottman, Philip A.	Portland
Owen, Eugene P.	Portland
Ryan, Paul H.	Portland
Sisson, Merrell A.	Portland
Strickland, Graeme H.	Portland
Thomas, Robert L.	Portland

Pennsylvania

Allan, John H.	Jenkintown
Androski, John J.	Scranton
Andrews, Raymond W.	Jamestown
Auslander, James L.	McKeesport
Bauer, Walter D., Jr.	Tyrone
Beall, William T.	New Castle
Bernhard, John J.	Allentown
Bodine, Marc W.	Williamsport
Bowman, James E.	Philadelphia
Boyle, James W.	Luzerne
Brogan, Edmund J.	Philadelphia
Burger, Regis F.	Pittsburgh
Burkley, George G.	Pittsburgh
Burns, John J.	Philadelphia
Campbell, Edward H.	Philadelphia
Clinger, Orris W.	Oil City
Crellin, Jacob A.	Philadelphia
Davis, Clare N.	Cynwyd
Davis, Raymond C.	Susquehanna
Downey, Francis E.	Bentleyville
Dreyer, John F.	Allentown
English, James B.	Altoona
Flannery, John L.	Harrisburg
Gallagher, Francis P.	Philadelphia
Genkins, Morris H.	Norristown
Gennaria, Charles R.	Shamokin
Goebert, Herbert W.	Coatesville
Griffith, Jesse B.	Pittsburgh
Hamilton, Edwin G.	Warren
Harkins, Francis A.	Philadelphia
Hartley, Arthur A.	Merion
Henninger, James M.	Sharpsburg
High, Carl M.	Reading
Houck, Edgar K.	Reading
Horwitz, Ellis B.	Philadelphia
Hunter, Charles T.	Newton
Janton, Otto H.	Philadelphia
Jones, Charles A.	Philadelphia
Judge, Francis P.	Wilkes-Barre
Kannerstein, Milton H.	Allentown
Kelley, Eugene M.	Exeter Boro
Kern, Richard A.	Wynnewood
Kiene, Richard H.	Bryn Mawr
Klemm, Ralph A.	Philadelphia
Knight, Francis P.	Philadelphia
Komisar, Paul S.	Erie
Leberman, Paul R.	Philadelphia
Letcher, Charles W.	Wilkes-Barre
Logan, Victor W.	Cynwyd
Lutz, Francis C.	Philadelphia
Lyon, Hollister W.	Punxsutawney
McCune, Quay A.	East Warren
McLaughlin, John J.	Lansdowne
McLean, Edwin B.	Abington
Miller, Henry W.	North Hills
Miller, Joseph J.	Pittsburgh
Montgomery, Hugh	Ardmore
Moran, Thomas J.	Castle Shannon
Morrison, John L.	Kane
Mosser, William B.	Kane
Nyce, Harry C.	Wallingford
Patterson, Robert L.	Beaver Falls
Patterson, Rex A.	Ligonier
Pfohl, George H.	Wilkinsburg

MEDICAL OFFICERS RELEASED BY THE NAVY

Pennsylvania—Continued

Ramsey, Lorraine E.	Carnegie
Rathmell, Thomas K.	Sharon
Rothrock, Henry A., Jr.	Bethlehem
Rumble, Edmund T., Jr.	Philadelphia
Schofield, Frederick S.	Philadelphia
Schuster, Lawrence E.	East Bangor
Sell, Oliver M.	Pittsburgh
Shanor, Harold A. R.	Pittsburgh
Sinclair, Sydney E.	Williamsport
Stahlnecker, Charles S.	Philadelphia
Tate, James H.	Erie
Turnbach, Robert J.	Allentown
Twining, Howard E.	Richboro
Yerg, Adam F.	Warren

Rhode Island

Bowles, George E.	Providence
Davis, William P.	Providence
Hall, Marshall G.	Newport
Littlefield, Frank B.	Providence
Mastrobuono, Amedeo N.	Lafayette
Merrill, Whitman	Washington
Riley, Frederick R.	Providence
Stevens, Raymond E.	Rumford
Vieira, Edwin	Providence

South Carolina

Black, Herbert M.	Walterboro
Brewer, John M.	Kershaw
Bultman, Robert B.	Sumter
Carnes, Walter C.	Lancaster
Green, Robert H.	Charleston
Holloway, William J.	Ware Shoals
Linton, Irwin G.	Charleston
Royal, Howard, G.	Greenwood
Siau, James R. S. III	Georgetown
Stevens, Alexander H., Jr.	Union

South Dakota

Hummer, Francis L.	Lead
Tobin, Leonard W.	Mitchell

Tennessee

Black, William T., Jr.	Memphis
Fuqua, Harold B.	Johnson City
Gillespie, Clarence E.	Memphis
Gotten, Henry B.	Memphis
Gotten, Nicholas	Memphis
Helm, Harry C.	White Pine
Mason, Alfred D., Jr.	Memphis
Miller, Richard A.	Memphis
Muse, William S.	Knoxville
Penn, Jarrell	Knoxville
Poole, Wallace L.	Johnson City
Scales, Hunter L., Jr.	Starkville
Wallace, Raymond A.	Memphis

Texas

Allison, Wilfred J.	Dallas
Andrews, Tom A., Jr.	Addicks
Awe, Chester D.	El Paso
Babcock, Darrow S.	Houston
Barker, William E.	Corpus Christi
Barnes, Sam R.	Houston
Benson, Clifford D.	Honey Grove
Billups, James T.	Houston
Blackwell, Ben T.	Amarillo
Bloom, Fred A.	Houston
Brady, Jesse J.	Austin
Bratton, Robert E.	Austin
Caldwell, Elbert H.	Tyler
Cole, Thomas C.	Huntsville
Cummings, Hatch W., Jr.	Houston
Cyrus, Elbert M., Jr.	Fort Worth
Dailey, James E.	Houston
Darrough, Lawrence E.	Dallas
Davis, Berthol E.	Denton
Diddle, Albert W.	Dallas
Henderson, Donald G.	Houston
Hensley, Barnes C.	Houston
Hunter, Carroll D.	Dallas
Isaacks, Herbert E.	Fort Worth
King, Karl B.	Dallas
Knolle, Guy E.	Houston

Texas—Continued

Lewis, Sanborn J.	Beaumont
Lindsey, Eugene H.	Beaumont
Lovett, James P.	Olney
Mabry, James D.	Penelope
McCollum, Charles H. Jr.	Fort Worth
Mitchner, James M.	Houston
Moore, Henry W.	Dallas
Outlar, Leonard B.	Wharton
Overton, Marvin C., Jr.	Pampa
Painton, Clifford E.	Port Arthur
Parsons, William F.	Fort Worth
Petta, Walter B.	San Antonio
Pugsley, Cornelius, Jr.	Houston
Puig, Valentine L., Jr.	Laredo
Roan, John L.	Commerce
Ross, Edward S.	Denison
Smith, Howard O.	Marlin
Steinbach, Herbert L.	Benham
Truett, Charles B.	Dallas
Tucker, Victor C.	San Antonio
Von Briesen, Delphin	El Paso
White, David L.	San Marcos
Williford, Herman B.	Beaumont
Willoughby, Russell C.	Port Arthur
Youngblood, Jarvis C.	Houston

Virginia

Alexander, Edward L.	Newport News
Angle, Lewis W.	Rocky Mount
Brown, Leland C.	Staunton
Clark, John W.	Ridgeway
Crawford, John C.	Norfolk
Eversole, Joseph W.	Coeburn
Fay, Frederick O.	Norfolk
Gardner, Henry L., Jr.	Suffolk
Garrison, George H. H.	Virginia Beach
Groseclose, Eugene S.	Lynchburg
Haddock, Edward E.	Richmond
Hall, Snowden C., Jr.	Danville
Houck, Joseph W.	Lynchburg
Hurlbut, Jesse L.	Salem
King, James P.	Radford
Lepis, Alphonse A.	Norfolk
McGriff, J. Rollins	Arlington
Miller, James A.	Winchester
Newman, Sigmund	Arlington
Palmer, Alfred M.	Vienna
Patterson, Charles H.	Lynchburg
Pembleton, Williams E.	Lynchburg
Reed, Wellford C.	Richmond
Roberts, David C.	Roanoke
Serrano, Ernest N.	Waynesboro
Stone, Harry B., Jr.	Roanoke
Upchurch, Roy W.	Danville
Williams, Mortimer H.	Roanoke
Yeager, William R.	Parkersburg
Yeatts, Harry B.	Danville
Ylung, Charles A.	Roanoke

Washington

Ash, Joseph L.	Seattle
Barner, Henry A.	Bremerton
Butler, Morville L.	Spokane
De Marsh, Quincy B.	Seattle
Dockendorff, William O.	Everett
Duncan, John A.	Seattle
Fatherree, Thomas L.	Soap Lake
Gould, Lindsay McD.	Seattle
Guyer, Edward C.	Seattle
Hartley, Herbert L.	Seattle
Haviland, James W.	Seattle
Jensen, Carl D. F.	Seattle
Jensen, Clyde R.	Seattle
Jensen, Earl C.	Seattle
Lewis, Elihu I.	Rocksbury
Losli, Ernest J.	Des Moines
Lower, Raymond A.	Spokane
Meagher, Angus C.	Toppenish
Moore, Philip H.	Carnation
Morrow, Cecil L.	Seattle
Murphy, Donald J.	Bellingham
Ohman, Albert C.	Seattle
Rew, Willard B.	Yakima
Rollins, Paul R.	Seattle

Washington—Continued

Sheridan, Thomas P.	Everett
Skinner, John W.	Kirkland
Voegtlin, Walter L.	Seattle
Wanamaker, Frank H.	Seattle
Watts, Charles E.	Seattle

West Virginia

Basman, Jack	Charleston
Daniels, Willard F.	Huntington
Gage, Everett L.	Bluefield
Gang, Lawrence B.	Huntington
Godbey, John R.	Charleston
Gray, Maston L.	Huntington
Lewis, Clarence E.	Charleston
McClung, William D.	Richwood
McIlvain, William E.	Moundsville
Mason, James T., Jr.	Bluefield
Osterman, Arthur L.	Wheeling
Phillips, Edward S.	Wheeling
Strange, William W.	Huntington

Wisconsin

Atwood, David C.	Madison
Batzle, Joseph H., Jr.	Madison
Bear, Nathan E.	Monroe
Benn, Herbert P.	Stevens Point
Bergen, Ralph D.	Milwaukee
Boudry, Marshall O.	Oconomowoc
Brady, Charles J.	Lake Geneva
Broderick, Clifford F.	Wauwatosa
Buckley, Roland A.	Eau Claire
Christensen, Howard W.	Wausau
Churchill, Bernard P.	Milwaukee
Correll, Howard L.	Milwaukee
Dean, Joseph C.	Madison
Donath, Lawrence H.	Wauwatosa
Franseen, Elmer F.	Frederic
Galasinski, Roman E.	Milwaukee
Goggins, John R.	Pulaski
Goodlad, James H.	Madison
Grossman, Arthur M.	Allis
Hatleberg, Earl J. A.	Chippewa Falls
Hilker, Harold C.	Racine
Hirschboeck, John S.	Milwaukee
Jorris, Edwin H.	Madison
Kleinpell, Walter C.	Kenosha
Kundert, Palmer R.	Madison
McCarty, Robert T.	Appleton
McDonald, Robert E.	Milwaukee
Madison, Burle B.	Portage
Margoles, Milton	Wauwatosa
Markson, Leonard S.	Milwaukee
Mauermann, William J.	Madison
Medison, Burle B.	Portage
Metcalf, Cecil J.	Dodgeville
Moore, William J.	Madison
Pansch, Frank N.	Appleton
Rastetter, Joseph W.	Kenosha
Ricciardi, Ignatius J.	Milwaukee
Rueckert, Ray R.	Madison
Schneeberger, Leonard J.	Milwaukee
Simpson, Frederick G.	Milwaukee
Vinograd, Eugene H.	Milwaukee
Wanless, John F.	Richland Center
Welsch, Raymond G.	Mayville
Williams, Earl B.	Oshkosh
Zawodny, Stanley E.	Milwaukee

Wyoming

Keenan, Leo W.	Torrington

Naval Reserve Medical Officers Recommended for Separation from the Naval Reserve and Retired

Iowa

Bunch, Harold M.	Shenandoah

Missouri

Stauffer, Tom G.	St. Louis

New York

Tomaselli, Blase L.	Rochester

the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in such dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," generally less than one year, may be deducted, but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of a more or less permanent nature. It may ultimately wear out, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using."

The cost of equipment such as has been described, for professional use, cannot be deducted as expense in the year acquired. Examples of this class of property are automobiles, office furniture, medical, surgical and laboratory equipment of more or less permanent nature, and instruments and appliances constituting a part of the physician's professional outfit, to be used over a considerable period of time, generally over one year. Books of more or less permanent nature are regarded as equipment and the purchase price is therefore not deductible.

Although the cost of such equipment is not deductible in the year acquired, nevertheless it may be recovered through depreciation deductions taken year by year over its useful life, as described later.

No hard and fast rule can be laid down as to what part of the cost of equipment is deductible each year as depreciation. The amount depends to some extent on the nature of the property and on the extent and character of its use. The length of its useful life should be the primary consideration. The most that can be done is to suggest certain average or normal rates of depreciation for each of several classes of articles and to leave to the taxpayer the modification of the suggested rates as the circumstances of his particular case may dictate. As fair, normal or average rates of depreciation, the following have been suggested: automobiles, 25 per cent a year; ordinary medical libraries, x-ray equipment, physical therapy equipment, electrical sterilizers, surgical instruments and diagnostic apparatus, 10 per cent a year; office furniture, 5 per cent a year.

The principle governing the determination of all rates of depreciation is that the total amount claimed by the taxpayer as depreciation during the life of the article, plus the salvage value of the article at the end of its useful life, shall not be greater than its purchase price. The physician must in good faith use his best judgment and claim only such allowance for depreciation as the facts justify. The estimate of useful life, on which the rate of depreciation is based, should be carefully considered in each individual case.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

Automobiles.—Payment for an automobile is a payment for permanent equipment and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeur's wages, and the like.

Deductible loss through depreciation of an automobile is the actual diminution in value resulting from obsolescence and use and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is possessed by the present taxpayer.

If an automobile is used for professional and also for personal purposes—as when used by the physician partly for recreation, or so used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood. What has been said in respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Contributions to Charitable Organizations.—For detailed information with respect to the deductibility of charitable contributions generally, physicians should consult the official return blank or obtain information from the collectors of internal revenue or from other reliable sources. Attention is called to the change in the law that applies to deductions for charitable contributions, namely, that an individual taxpayer can deduct such contributions only to the extent that they do not exceed 15 per cent of his adjusted gross income. The physician may not deduct as a charitable contribution the value of services rendered an organization operated for charitable purposes.

Bad Debts.—Physicians who make their returns on a cash receipts and disbursements basis, as most physicians do, cannot claim deductions for bad debts.

Taxes.—Taxes generally, either federal or state, are deductible by the person on whom they are imposed by law. Both real and personal property taxes are deductible; but so-called taxes, more properly assessments, paid for local benefits, such as street, sidewalk and other like improvements, imposed because of and measured by some benefit inuring directly to the property against which the assessment is levied, do not constitute an allowable deduction from gross income. Physicians may deduct state gasoline taxes and state sales taxes. In some states sales taxes are imposed on the seller, but, if they are passed on to the buyer, the latter may deduct them.

State income and use taxes are deductible; federal income taxes are not. Federal import, excise or stamp taxes are deductible only to the extent that they are attributable to business activities. State automobile license fees are deductible. If a state or local fee is imposed for regulatory purposes, and not to raise revenue, the fee may not ordinarily be deducted as a tax. If such fees, however, are classifiable as a business expense, they are deductible as such. Annual registration fees imposed on physicians probably come within the category of regulatory fees and should be deducted as a business expense rather than as taxes. Local and state occupational taxes imposed on physicians are deductible either as taxes or as a business expense, depending on the purpose for which the tax is imposed.

The excise taxes imposed on employers by section 804, title VIII, and section 901, title IX, of the Social Security Act, commonly referred to as old age and unemployment benefit taxes, are deductible annually by employers in computing net income for federal income tax purposes. If the taxpayer's return is made on a cash basis, as are the returns of practically all physicians, the taxes are deductible for the year in which they are actually paid. If the return is made on an accrual basis, the taxes are deductible for the year in which they accrue, irrespective of when they are actually paid. Employees, including physicians whose employment brings them within that category, may not deduct the tax imposed on them by section 801, title VIII, of the Social Security Act, generally referred to as the old age benefits tax. If, however, the employer assumes payment of the employee's tax and does not withhold the amount of the tax from the employee's wages, the amount of the tax so assumed may be deducted by the employer, not as a tax paid but as an ordinary business expense.

Medical Expense.—A taxpayer may deduct amounts expended for medical, dental and hospital care for himself, his spouse or a dependent, not compensated for by insurance or otherwise, including amounts paid for accident and health insurance, according to a prescribed formula. Deductions will be permitted to the extent that such expenses exceed 5 per cent of the adjusted gross income of the taxpayer but not in excess of $2,500 in case of a taxpayer with more than one surtax exemption, or $1,250 in case of a taxpayer with only one surtax exemption.

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire or Other Causes.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expense incurred in the defense of a suit for malpractice is deductible as a business expense.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charges for spectacles, etc.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Health Programs for Government Employees

The Senate Committee on Civil Service has reported H. R. 2716 to the Senate with the recommendation that it pass, providing health programs for government employees to be established in localities where there are a sufficient number of federal employees to warrant the provision of such services. Services will be limited to (1) treatments on the job of illnesses and dental conditions requiring emergency attention, (2) preemployment and other examinations, (3) referral of employees to private physicians and dentists and (4) preventive programs relating to health. An amendment proposed by the Senate committee would authorize the utilization of osteopathic services in the health programs to be established under the bill.

Educational Loans

Senator Langer, North Dakota, by S. 1782, proposes an appropriation of $3,000,000,000 to enable the Commissioner of Education to make loans to individuals desiring to obtain vocational, technical, academic or professional education beyond the high school level. The commissioner would be authorized to promulgate such rules and regulations as may be necessary to carry out the provisions of the legislation.

Chemical Tests for Intoxication

An amendment to the District of Columbia Traffic Act is proposed by H. R. 5406, introduced by Representative Hébert, Louisiana, by request, to provide tests of blood, urine and breath of persons arrested in the District of Columbia on a charge of operating a vehicle under the influence of intoxicating liquor or on a charge of negligent homicide or on a charge of manslaughter committed in the operation of any vehicle. The bill proposes that (1) evidence that there was five one-hundredths of 1 per cent, or less, by weight of alcohol in the defendant's blood or urine or an equivalent amount of alcohol in two thousand cubic centimeters of his breath (alveolar air), shall be prima facie evidence that the defendant was not under the influence of intoxicating liquor at the time the specimen was taken; (2) evidence that there was more than five one-hundredths of 1 per cent and less than fifteen one-hundredths of 1 per cent by weight of alcohol in the defendant's blood or urine, or an equivalent amount of alcohol in two thousand cubic centimeters of his breath (alveolar air), shall be relevant evidence but is not to be given prima facie effect in indicating whether or not the defendant was under the influence of intoxicating liquor at the time the specimen was taken; and (3) evidence that there was fifteen one-hundredths of 1 per cent, or more, by weight of alcohol in such defendant's blood or urine, or an equivalent amount of alcohol in two thousand cubic centimeters of his breath (alveolar air), shall be prima facie evidence that such defendant was under the influence of intoxicating liquor at the time the specimen was taken.

Hill-Burton Hospital Construction Bill

Hearings have been scheduled to begin on or about February 25 by a subcommittee of the House Committee on Interstate and Foreign Commerce on the Hill-Burton hospital construction bill.

STATE LEGISLATION

California

Bill Introduced.—S. C. R. 16-X proposes a resolution requesting the state director of finance to appropriate $44,000 for the purpose of carrying out a 1945 law providing for the better protection of the public health by state licensing, inspecting, regulating and supervising of public and private hospitals.

Bills Passed.—A. 37-X passed the senate January 31. It proposes to amend the business and professions code so as to increase the annual tax and registration fee of osteopaths from $5 to $10 for residents and from $2 to $10 for nonresidents. A. 88-X passed the assembly on January 22. It proposes the creation of a State Advisory Council on Hospital Facilities and would authorize the Department of Public Health to make a survey of existing public and private hospitals and health centers in the state, to evaluate the sufficiency of such hospitals and health centers to supply the necessary physical facilities for furnishing adequate hospital, clinic and similar services to the people of the state, and to make any recommendations concerning additional facilities as may be necessary. Prior to passage by the assembly, this proposal was amended to provide that the word "hospital" shall not include any institution conducted by or for the adherents of any well recognized church or religious denominations for the purpose of providing facilities for the care or treatment of the sick who depend on prayer or spiritual means for healing in the practice of the religion of such church or denomination.

Georgia

Bills Enacted.—H. 655 became Governor's Act 576 of the Acts of 1945 on January 31. It amends the law relating to qualifications of applicants for a license to practice nursing by reducing from 21 to 20 the required age of the applicant. H. 732 became chapter 623 of the Laws of 1946 on February 1. It authorizes the Board of Health to make and promulgate reasonable rules and regulations for the protection of the health and lives of inmates and patients of hospitals, sanatoriums, infirmaries, maternity homes, nursing homes and other institutions where persons are received for treatment, examination, maternity care or nursing care in the state. In connection therewith a hospital advisory committee will be established, consisting of three members appointed by the Medical Association of Georgia or its Board of Councilors, the total membership of the advisory committee numbering fourteen.

Kentucky

Bills Introduced.—H. 171 proposes the enactment of a law authorizing the establishment, maintenance and operation of medical service plan corporations. "Medical services" would mean the "general and usual services rendered and care administered by doctors of medicine." "Participating physician" would mean a "doctor of medicine licensed to practice medicine and surgery in this state under the provisions of the medical practice act" who agrees in writing to perform the services specified by the subscription certificates. S. 87 proposes that any person or corporation operating a hospital in Kentucky shall first obtain a license therefor. "Hospital" is defined as "any institution which maintains and operates organized facilities for the diagnosis, treatment and care of humans suffering from illness, injury or deformity, where bedside nursing care is rendered for a period exceeding twenty-four (24) hours."

Bill Passed.—S. 56 passed the senate January 31. To amend the law relating to the practice of pharmacy, this bill proposes that applicants for a license must be citizens of the United States, must have graduated from a school or college of pharmacy recognized and approved by the Kentucky board of pharmacy and must submit proper affidavits showing a minimum of one year of experience in a retail pharmacy under the supervision of a registered pharmacist.

Massachusetts

Bills Introduced.—H. 722 proposes that any clinic maintained by an insurance company for the treatment of injuries occasioned to employees of any of its assureds shall be open at all times for the reception of patients and shall have in attendance at all times a qualified physician.

Mississippi

Bills Introduced.—H. 235, to amend the law authorizing towns and districts to operate and maintain community hospitals, proposes that at least one member of the board of trustees of such institution shall be a practicing physician in good standing with the state medical association. H. 298, to amend the law relating to the issuance of marriage licenses, proposes that both applicants for a marriage license shall present a certificate certifying that he or she is "free from syphilis, gonorrhea and chancroid, or certifying as to the exact status of the venereal disease." The medical examination on which the certificate is based may be made by an active licensed physician in Mississippi, by a physician licensed to practice in any or all of the other states of the Union or the District of Columbia, by a commissioned medical officer on active duty in the armed forces of the United States, or by a medical officer of the United States Public Health Service, provided that said examination may be made free of charge by any full time county health officer licensed to practice in Mississippi if the person examined is unable to pay for same. H. 300 proposes to authorize the Mississippi State Board of Health to establish one hundred annual medical scholarships of the annual value of five hundred dollars each. The purpose of these scholarships is to induce medical graduates to engage in the general practice of medicine in a rural community in Mississippi.

Bill Enacted.—H. R. 10 was adopted Jan. 17, 1946. This is a resolution memorializing the Congress of the United States to enact suitable and adequate legislation for the training of doctors at government expense to take care of personnel of the United States armed forces wounded in the service of the country.

New York

Bills Introduced.—A. 610, to amend the public health law, proposes to require every physician to give notice immediately to the health officer of the county, city, town or village of every case of infantile paralysis under his care. Like notice would be given by the person in charge of any hospital, dispensary, asylum or other similar institution of every case of infantile paralysis coming under its care. The proposal also would create in the state department of health a division of infantile paralysis control. A. 683 and S. 577, to amend the workmen's compensation law, proposes that physician members of the advisory council shall not be eligible for authorization to render medical care under the workmen's compensation law and shall not examine, treat, consult or in any way care for a compensation claimant at the request either of the claimant or of a carrier. A. 706, to amend the unemployment insurance law, proposes that sickness or accident disability causing unemployment shall be certified under oath by a physician or surgeon duly licensed to practice in the state of New York. A. 730 proposes a licensing law for persons and institutions desiring to conduct scientific experiments or to perform vivisection on living dogs. A. 741 and S. 603, to amend the education law, propose the establishment of the New York state university to be composed of a college of arts and sciences, engineering, medicine, law and such other colleges and professional schools as the regents may from time to time establish. A. 823, to amend the law relating to experiments on living dogs, proposes to prohibit such experiments even though conducted under the authority of the faculty of some regularly incorporated medical college or university as at present permitted. A. 839, to amend the education law, proposes the establishment of an Empire State University, to include, among other things, a school of medicine. A. 854, to amend the workmen's compensation law, proposes that an injured employee requiring dental care may select any dentist to treat him who is authorized under rules and regulations adopted by the commissioner on the recommendation of the state board of dental examiners. The reasonableness and necessity for such dental care and treatment shall be determined by the industrial board. A. 862, to amend the workmen's compensation law, proposes that the physician members of any committee appointed by the chairman of the industrial board to assist him in any particular case shall receive a fee for each case or shall be paid on a per diem basis as determined by the chairman. If they make a report and testify, they shall be paid an additional fee. S. 556, to amend the law in relation to hospital liens, proposes that such liens shall not include personal services rendered by a physician or surgeon and that the rates charged by the hospital shall be deemed equivalent to the scheduled rates currently approved by the industrial commissioner and the superintendent of insurance for cases under the workmen's compensation law. S. 620, to amend the law relating to actions for damages for death caused by wrongful act and the distribution of the proceeds thereof, proposes to put in the first priority of items to be paid for when damages are distributed the reasonable expenses of medical aid, nursing and attention incident to the injury causing death. S. 659, to amend the law in relation to barbiturates, proposes to prohibit the sale at retail of any barbiturate or other hypnotic or somnifacient drug to any person except on prescription written by "a person legally authorized to issue such prescription." A prescription shall state whether or not it may be refilled.

Virginia

Bill Introduced.—S. 120 proposes to authorize the establishment within the Department of Health of a Bureau of Rabies Control to prevent the occurrence and spread of said disease.

Coming Medical Meetings

Aero Medical Association, Chicago, April 7-9. Dr. David S. Brachman, 1016 Dime Building, Detroit 26, Secretary.

American Association of Anatomists, Cleveland, April 4-6. Dr. Eliot R. Clark, University of Pennsylvania School of Medicine, Philadelphia 4, Secretary.

American Association of Pathologists and Bacteriologists, Chicago, March 8-9. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Physiological Society, Atlantic City, March 11-15. Dr. Wallace O. Fenn, 260 Crittenden Blvd., Rochester 7, New York, Secretary.

American Society for Experimental Pathology, Atlantic City, March 11-15. Dr. Harry P. Smith, 630 W. 168th St., New York 32, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Atlantic City, March 11-15. Dr. Raymond N. Bieter, University of Minnesota Medical School, Minneapolis, Secretary.

American Surgical Association, Hot Springs, Va., April 2-4. Dr. Warfield M. Firor, Johns Hopkins Hospital, Baltimore 5, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, March 5-8. Dr. Warren W. Furey, 30 North Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 18-21. Dr. John G. Young, 1719 Pacific Avenue, Dallas 1, Director of Clinics.

Federation of American Societies for Experimental Biology, Atlantic City, March 11-15. Dr. D. R. Hooker, 19 West Chase Street, Baltimore 1, Secretary.

Medical Library Association, New Haven, Conn., March 25-27. Miss Frida Pliefke, 2000 Medical Arts Bldg., Minneapolis 2, Secretary.

Missouri State Medical Association, St. Louis, March 24-26. Dr. Ralph L. Thompson, 634 N. Grand Blvd., St. Louis 3, Secretary.

Southeastern Surgical Congress, Memphis, Tenn., March 11-13. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Georgia, Secretary.

Tennessee State Medical Association, Knoxville, April 9-11. Dr. W. M. Hardy, 706 Church Street, Nashville, Secretary.

Washington Letter

(From a Special Correspondent)

Feb. 11, 1946.

General Bradley Receives Backing of Medical Chiefs

Medical chiefs of the United States armed forces joined with President Truman in backing General Omar Bradley in his program of veteran hospitalization which has been criticized by John Stelle, national commander of the American Legion as indicative of a "tragic breakdown" in the Veterans Administration. Approving the plans of General Bradley and his medical director, Major Gen. Paul R. Hawley, were Major Gen. Norman T. Kirk, Surgeon General of the Army; Vice Admiral Ross T. McIntire, Surgeon General of the Navy; Major Gen. Warren Draper, Deputy Surgeon General of the Public Health Service, and Brig. Gen. Malcolm Grow, Surgeon General of the Army Air Forces. General Kirk pledged "complete support" to Bradley and Hawley, declaring "I think their plans are ideal. By setting up hospitals near large cities patients will be treated by the best specialists and Veterans Administration doctors will become better physicians." The only alternative, he said, was to build hospitals on the basis of "pork and patronage." Admiral McIntire pointed out that the Federal Bureau of Hospitalization supported the Bradley program. General Draper advocated "swamping" attacks on Bradley so that he can "go ahead and do a decent job for thousands of veterans." He urged the Veterans Administration chiefs to "stick to their guns." President Truman had pledged his "complete and unqualified support to General Bradley."

Antivivisectionists Seek Medical Testimony

Representative Lemke, Republican of North Dakota, states that he is seeking to have several nationally known doctors testify at forthcoming hearings on legislation to forbid experimentation on dogs in the District of Columbia. Sponsor of the bill which provides a minimum $100 fine, three months in prison or both for violations, he said that he felt such medical testimony would help to offset anticipated opposition of organized medicine. In the past similar bills have died because there were few recognized doctors to support them against the testimony of witnesses from the American Medical Association, U. S. Public Health Service, the District of Columbia Medical Society and the District health department. The bill is before the judiciary subcommittee of the House District Committee, and chairman Representative McGehee, Democrat of Mississippi, has promised to set an early date for hearings.

Congresswomen Favor Maternity Care for Wacs

Congresswomen have commented indignantly on the revelation by General Omar Bradley that married women veterans can't have their babies in Veterans Administration hospitals. They were largely in favor of having the regulations changed. General Bradley unearthed a ruling which barred former Wacs, Waves, Spars and women Marines from receiving maternity services in veterans' hospitals at government expense. One official explained that "one must have had some sort of an accident to get government care, and childbirth is not an accident." Representative Helen Gahagan Douglas, Democrat of California, called the ruling unfair, while Representative Francis Bolton, Republican of Ohio, believed that veterans' hospitals should provide obstetric service for women veterans but not antepartum or postpartum care.

Hospital Corps Veterans Organize to Find Jobs

A new veterans' organization, the National Association of Veterans of the Hospital Corps, has been organized to obtain jobs for members in hospitals, laboratories, drug companies and other medical activities. The president is Buford E. Kirwan, retired naval lieutenant and a veteran of both wars. Raymond Watson, the organizer, explains its objectives: "Hospitals, drug companies, laboratories, dentists and industry in general are looking for Hospital Corps veterans to fill positions in their organizations. Supplementing the services of an overworked and insufficient medical doctor population, these men and women of the military hospital corps can contribute much to the nation's health." The headquarters are at 1705 M Street N.W.

Four Drug Firms Receive Highest Corporation Federal Tax Refunds

Four drug firms received the largest federal tax refunds for the fiscal year 1945, according to the treasury list submitted to the House Committee on Executive Expenditures. The refunds were for overpayments by individuals, corporations and estates. Only seven taxpayers received more than $1,000,000 in refunds. Leading this group was the drug firm of Eli Lilly & Co., Indianapolis, with $2,239,065. The other three drug firms were Sharp & Dohme, Inc., Philadelphia, $1,856,744; Parke, Davis & Co., Detroit, $1,610,613, and the Upjohn Company, Kalamazoo, Mich., $1,146,074. The largest refund to an individual was $1,375,000 to Henry F. du Pont of Winterthur, Del.

Health Dangers Cited in Wheat-Saving Order

President Truman's order to conserve wheat for shipment to war devastated countries by providing dark bread for Americans was criticized by a Department of Agriculture official as being dangerous for thousands of persons who cannot eat roughage. It is claimed that provision will be required for people who must have white bread. Under the President's voluntary plan, 80 per cent flour extraction is to be made from wheat kernels, whereas 70 per cent has been normal for white bread. It is claimed that in 1917, when a similar bread campaign was tried in Europe, "11 million persons were casualties of intestinal upsets," and special certificates for white bread had to be issued.

U. S. P. H. S. Launches Research on Cause of Colds

Dr. R. E. Dyer, director of the U. S. Public Health Service National Institute of Health, who will supervise a prolonged research program to find the cause of the common cold, says that his investigators will keep at it until they have the answer. An initial expenditure of $50,000 is planned and it is proposed to find, in addition to the cause of colds, what will prevent and cure them. Dr. Dyer says this is the first "whole hearted attack on the cold problem. Colds cause more disability than any other single disease. We estimate that each day in this country an average of 250,000 persons are out of work because of colds."

Dangers of Farm Well Water Highlighted

Disease dangers in farm water wells which may be prevalent throughout the country are highlighted by the report of Dr. Nelson Podolnick, health officer of Fairfax County, Va., that the overflow from septic tanks has contaminated many wells supplying drinking water for Vienna, Va., and constitutes a grave health menace. His department has tested wells at the owner's request and found them unfit for human use. A complete house to house survey has never been made. One case of typhoid reported in Vienna last year was traced directly to a contaminated well.

Congressional Approval Expected of Federal Employee Health Bill

Favorable congressional action is expected soon on the federal employee health bill, which passed the House several months ago. Senator Sheridan F. Downey, Democrat of California, chairman of the Senate Civil Service Committee, thinks that a quick approval will be forthcoming in the Senate. The bill would allow federal agencies to set up small medical units to safeguard the health of employees.

Hearings Resume of Washington Hospital Center

The House District Committee will resume hearings Wednesday on the bill to erect a $20,000,000 hospital center in the nation's capital. The District of Columbia has opposed being obliged to contribute funds. It is hoped that the hearing will decide whether one third of the costs of site and construction should be repaid by contributing nonprofit private hospitals, by the District government, or whether the whole cost should be carried by the federal government.

Army Aerial Search and Rescue Program in Maryland

The Army's aerial search and rescue program will have its headquarters at Andrews Field Army Air Base in Maryland, adjacent to the national capital. The 62d AAF Base Unit will administer and coordinate the activities of nineteen rescue units throughout the United States. The program consolidates the elaborate search and rescue systems established at the outset of the war by each of the four continental air forces.

Veterans Administration to Hire 500 Hospital Clerks

The Veterans Administration plans to relieve its doctors of heavy "paper work" so that they can devote more time to patients. The agency has authorized its hospitals to hire 500 clerk-typists for work in hospital wards. The clerk-typists will answer telephones, direct patients to clinics, take dictation from physicians and nurses, type hospital records and handle other clerical duties. They will be hired in the district adjacent to the hospital served.

"Fugitive" Narcotics Recovered from Soldiers

Elmer L. Irey, chief coordinator of treasury law enforcement agencies, in his report to Treasury Secretary Vinson, reports that a considerable quantity of what is known as "dope fugitive" is being recovered from returning soldiers. As in the first world war, Allied officials are trying to corral all surplus narcotic supplies in wartorn areas, but quantities of such drugs are finding their way into the illicit United States and world trade.

Dr. J. Wayne McFarland Appointed Magazine Editor

Dr. J. Wayne McFarland has been appointed editor of *Life and Health*, a Seventh Day Adventist publication. He will serve as assistant secretary for health education of the medical department of the denomination and as a consulting physician in physical medicine at the Washington Sanitarium and Hospital.

Uncertain Future of Hospital Center Legislation

The future of the bill to create a $20,000,000 hospital center in Washington is uncertain, since the subcommittee yielded to District of Columbia demands that the District be exempted from sharing in the cost. The bill went to the full House District Committee "without recommendation."

Council on Medical Service and Public Relations

PREPAID MEDICAL CARE NEWS

Kansas Physicians' Service

After three years' study of various prepaid medical plans in operation in the United States and after enabling legislation had been passed by the 1945 Kansas legislature, all forms have been approved by the commissioner of insurance for the state of Kansas, from whom the certificate of authority was issued on December 11. This certificate, therefore, places Kansas Physicians' Service into operation.

Kansas Physicians' Service is a nonprofit corporation organized by the Kansas Medical Society. It exists for the purpose of enabling the people of Kansas to purchase subscription agreements entitling them to prepaid surgical and medical care. The details of the plan are as follows: Benefits to be included are surgical, in which all types of surgery may be covered immediately except that an eight months waiting period is required for tonsillectomies and adenoidectomies and for preexisting conditions. The second benefit is for obstetrics, which is available to all subscribers holding family benefits after eight consecutive months' membership. All accident cases involving fractures and dislocations are covered immediately and a maximum of $15 per year is allowable for diagnostic x-rays in accident cases only. The fourth benefit is for nonsurgical illness. Here, benefits begin on the fourth day of hospitalization and continue for thirty days thereafter.

The Kansas program is a combination of a service and indemnity plan whereby families with a yearly income of less than $2,400 will be given a service benefit and those making over that amount of money will receive an indemnity type of benefit. The decision as to which is to be applied rests with the doctor and the patient involved.

Free choice of physicians is assured, and participation in the plan is of course strictly voluntary.

The officers of the corporation are Dr. Barrett A. Nelson, Manhattan, president; Dr. John L. Lattimore, Topeka, vice president; Dr. W. M. Mills, Topeka, secretary-treasurer.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

District Meeting.—The Fifth Councilor District Medical Society was addressed in El Dorado, January 8, by Drs. Alton Ochsner, New Orleans, on "Carcinoma of the Lung: Early Diagnosis and Possibilities of Treatment," and William W. Scott, Chicago, on "The Urinary 17-Ketosteroids: The Rise of Our Knowledge of Their Origin and Excretion and Their Clinical Significance."

CONNECTICUT

Personal.—Dr. James C. Fox Jr., formerly clinical professor of neurology at Yale University School of Medicine, New Haven, has been appointed assistant medical director of the Hartford Hospital.——Dr. Albert W. Snoke, Rochester, N. Y., assistant director of Strong Memorial Hospital, has been named director of the New Haven Hospital.

Physician Honored.—Dr. D. C. Y. Moore, Manchester, was guest of honor at a dinner recently given by the Manchester Medical Association in recognition of his completion of fifty years in the practice of medicine. Dr. George A. F. Lundberg, Manchester, was toastmaster and, on behalf of the association, presented Dr. Moore with a gold chain and charm on which was inscribed "Fifty Years of Service as a Physician."

MASSACHUSETTS

Manfred Bowditch Goes to Saranac.—Mr. Manfred Bowditch, director, division of occupational hygiene, Massachusetts State Department of Labor since the establishment of the division, has joined the staff of the Saranac Laboratory at Saranac Lake, N. Y., as field director.

Francis Denny Retires.—Dr. Francis P. Denny retired recently as health officer of Brookline after many years of service to the community. Dr. Denny graduated at Harvard Medical School, Boston, in 1895 and started to practice in Brookline in 1897. According to the *New England Journal of Medicine* he established a bacteriologic laboratory in the city in 1899, the first in Massachusetts outside Boston, a tuberculosis pavilion as part of the Brookline contagious disease hospital in 1914 and a dental dispensary in 1915. He inaugurated immunization against diphtheria in 1923. For twenty-six years Dr. Denny was responsible for the quarterly publication of the *Brookline Health Bulletin*, a sheet that is delivered to every household in the town, printing regularly the results of milk examinations, the rating of restaurants and much other timely health advice. During his term of office Brookline was three times the winner of the health conservation contest sponsored by the United States Chamber of Commerce. Dr. Denny has been president of the Massachusetts Public Health Association, the Norfolk District Medical Society and the Brookline Anti-Tuberculosis Society and a member of the executive committee of the Massachusetts Tuberculosis League, now being its honorary vice president. The new health officer is Dr. Alfred L. Frechette, formerly state health officer of New Hampshire.

State Plan Provides for Segregation of Mentally Ill Children.—The Massachusetts Department of Mental Health has announced that the entire state, excepting Boston, has been established as a state hospital district for children 15 years of age or younger. Effective January 1, no children under 15 years of age are to be admitted to the following state hospitals: Boston, Danvers, Foxborough, Gardner, Grafton, Medfield, Northampton, Taunton, Westborough and Worcester. For the entire state children in this age group are to be admitted to the Metropolitan State Hospital, Waltham, with the exception that in the city of Boston children within this age group may be admitted to the Boston Psychopathic Hospital for a period of study only. Any case from Boston requiring continued care should be sent directly to the Metropolitan State Hospital. This new plan has been arranged in order that children may be properly segregated from mentally ill adults and, at the same time, receive adequate educational and recreational facilities. At the Metropolitan State Hospital a 100 bed unit has been set up to be used only for children. At present this will be used for psychotic children only, but it is planned that as soon as practical this unit will also be used for the purpose of studying and treating behavior problems in children. The unit has been arranged so that the psychotic children will be separated from the nonpsychotic study cases. The department has requested approval for the appointment of personnel for this unit consisting of a clinical director, psychiatric social worker, psychologist, junior clerk and stenographer, dietitian, two head nurses and an institutional school teacher.

MINNESOTA

Special Lectures.—The annual George Chase Christian Lecture in the field of cancer research or treatment was delivered at the University of Minnesota Medical School, Minneapolis, February 7 by Leonell C. Strong, Ph.D., associate professor of anatomy, Yale University School of Medicine, New Haven. His subject was "Mice, Men and Malignancy." Dr. Strong also gave a lecture February 6 on "Experimental Gastric Carcinoma in Mice."——Dr. T. Duckett Jones, associate professor of medicine, Harvard Medical School, Boston, gave the annual Clarence Martin Jackson Lecture at the University of Minnesota Medical School, Minneapolis, on rheumatic fever. The lecture is sponsored by the Phi Beta Pi medical fraternity.

Chiropractor Receives Suspended Sentence.—On November 26 Alfred Peterson, Duluth, chiropractor, received a suspended sentence of one year in the Minnesota Workhouse on condition that he surrender his medicines to be destroyed by the state and that he refrain from practicing healing in any manner anywhere in the state of Minnesota. Peterson agreed. He was arrested in Minnesota November 20 following an investigation by the Minnesota State Board of Medical Examiners and the Minneapolis police department, which disclosed that he claimed to have studied but held no license to practice any form of healing in the state. He was making regular trips to interview patients at hotels in Virginia, Hibbing, Grand Rapids, Brainerd, St. Cloud, Mora, Cambridge and Minneapolis and stated "I will give $1,000 to any medical association, any cancer research institution, or any one if they can prove that these testimonials are not true." In his literature Peterson claimed to have "discovered a cure for heart *trouble, gallstones, ulcers, eczema, rheumatism, sinus, and that* dreaded disease cancer." On one of his trips to Mora, Peterson made the mistake of furnishing the same medication to 7 patients with seven different ailments.

NEW YORK

Supreme Court Upholds Regulation of Board of Health.—In a decision announced recently, Justice Swezey of the New York Supreme Court denied the request of a joint committee of teachers' organizations in New York City for an injunction to restrain the New York City Board of Education and the New York City Department of Health from enforcing a regulation to require teachers to have a chest x-ray every two years. A regulation of the sanitary code, adopted by the city board of health, requires teachers and other employees who work in the schools and come in contact with the children to procure biennially a certificate from a physician or from the board of health based on a chest x-ray examination and certifying that such employee is free from active tuberculosis. The teachers contended that "the board of health was not empowered to enact such a regulation, that the regulation in addition to being beyond the scope of the board's powers was arbitrary, capricious and unreasonable and was contrary to the constitution and laws of the United States and the constitution and laws of the state of New York." It was contended further that "this regulation denied equal protection of the law to the persons directed to submit to such examination and was discriminatory in that it was applicable to no other person or group of persons who come in contact with children or whose work placed them in frequent contact with persons who might be infected with the disease." The board of health and board of education held that the regulation was a valid and reasonable exercise of the powers vested by law in the board of health to promulgate regulations for the security of life and health in the city and that it was not "arbitrary, capricious or discriminatory" (THE JOURNAL, June 2, 1945, p. 378).

New York City

The Harvey Lecture.—Dr. Stafford L. Warren, professor of radiology, University of Rochester School of Medicine and Dentistry, will deliver the fifth Harvey Society Lecture of the current series at the New York Academy of Medicine, February 21. Dr. Warren will speak on "The Story of Nagasaki."

NORTH CAROLINA

Bowman Gray Activities.—Bowman Gray School of Medicine at Wake Forest College, Winston-Salem, announces that Dr. Robert B. Lawson, assistant professor of pediatrics, returned from a year's leave of absence spent in virology at the George Williams Hooper Foundation, University of California. Dr. Lawson will resume his regular duties in the department of pediatrics, and Dr. C. Hampton Mauzy, recently discharged from the army, has resumed his position on the faculty as assistant professor of obstetrics and gynecology. His status has been changed from part time to whole time. Dr. John R. Williams Jr. has resigned as assistant professor of medicine to become associated with his father, Dr. John R. Williams Sr., in the practice of medicine in Rochester, N. Y. New appointments include Dr. Weston M. Kelsey, Westport, Conn., instructor in pediatrics. He has recently been discharged from the army, in which he obtained the commission of captain. William E. Cornatzer, Ph.D., assumed the position of assistant professor of biochemistry. Dr. Joseph T. Phillips Jr., Washington, is the new instructor in biochemistry.

OHIO

Health Museum Buys New Home. — The Cleveland Health Museum plans to hold a formal opening of its new home the last week in April. The building, formerly known as Garfield House and occupied by the Cleveland Speech and Hearing Center, will be used primarily to accommodate the Dickinson collection of sculptural models of human reproduction (The Journal, July 21, 1945, p. 893). In addition it will augment space for other existing exhibits and new exhibits planned to cover mental hygiene, industrial health and a new series pointing the way to healthier and happier old age, furnish additional space for the health education laboratories, particularly the new plastics department, and provide increased facilities for teaching in the postgraduate field of health education. The newly acquired property consists of 2⅝ acres. The principal building is a terra cotta, stone and brick structure of thirty-nine rooms on four floors, including the basement. The Cleveland Speech and Hearing Center, which formerly occupied the building, has established new quarters at 11206 Euclid Avenue on the campus of Western Reserve University (The Journal, June 9, 1945, p. 453). The Cleveland Health Museum was incorporated in 1936 by a group of physicians, dentists, members of the Cleveland Health Council and lay persons to find and utilize popular methods of teaching the public basic facts about the human body and its care (The Journal, Dec. 7, 1940, p. 2012). Dr. Bruno Gebhard has been the director of the museum since it officially opened.

New home of the Cleveland Health Museum.

PENNSYLVANIA

The State's School Health Program.—The school health act recently enacted by the general assembly in Pennsylvania provides for a complete medical and dental examination of all children of school age and teachers and other school employees in the public and private elementary and secondary schools. An appropriation of $4,000,000 is provided to cover the cost of the program in the commonwealth for the next biennium. The examination of school children must be held every two years while they are members of the first, third, fifth, seventh and ninth grades. All school employees must have complete medical and dental examinations every two years. Not more than four medical and eight dental examinations per hour may be made by each examiner. The act shall not apply in cases of religious objection unless exemption would menace the health of other persons. The school child or employee may have the health or dental examination made by his private physician or dentist at his own expense on forms prescribed by the state, submitting the record of examinations to the local school health authorities. The local school district will receive from the state $1.50 for each medical examination and 75 cents for each dental examination.

Philadelphia

Plastic and Reconstructive Surgery Meeting.—The American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, Inc., will be addressed at the Philadelphia County Medical Society February 28 by Drs. Chevalier L. Jackson on "Plastic Surgery of the Larynx and Cervical Esophagus," David Myers on "Missile Injuries of the Mastoids, Sinuses and Maxillofacial Structures" and John V. Blady on "Maxillofacial Surgery in Cancer."

TEXAS

Fund for Needy Students.—The Medical Dames of the University of Texas Medical Branch, Galveston, has established a fund for the annual award of an appropriate prize to the most scholarly and needy first year student. The Medical Dames, which was organized by the wives of the medical students in the fall of 1944, plans to maintain an active program for the promotion of the welfare of the medical branch.

Research Council Created.—Dr. Robert M. Moore, professor of Surgery, University of Texas Medical Branch, Galveston, has been named chairman of a research council recently created at the school. The council was selected by the faculty to afford guidance and advice for staff members engaged in research. The program will assure coordination and uniformity of standards of research efforts. Dr. Moore developed the laboratory of experimental surgery at the school prior to entering the U. S. Army, where he was commanding officer of the 127th General Hospital.

Baylor Hospital Staff Reorganized.—The medical staff at Baylor University Hospital, Dallas, has been reorganized and a medical board created to supervise the teaching program at the hospital. The new board is composed of thirteen Dallas physicians appointed by the trustees as chiefs of various medical and surgical services. Its purpose will be to raise hospital standards, furthering medical instruction and medical research, direct the staff and organization and supervise the teaching program for residents and interns. It will also cooperate in the teaching of medical students at Southwestern Medical College, Dallas, and assist in dissemination of medical information to the public. Membership of the new board includes:

Dr. Earl F. Weir, Council Bluffs, Iowa, anesthesiology.
Dr. Henry M. Winans, Dallas, internal medicine.
Dr. Albert P. D'Errico, Dallas, neurologic surgery.
Dr. William K. Strother Jr., Dallas, obstetrics and gynecology.
Dr. Lester H. Quinn, Dallas, ophthalmology.
Dr. Felix L. Butte, Dallas, orthopedic surgery.
Dr. Lyle M. Sellers, Dallas, otolaryngology.
Dr. Joseph M. Hill, Dallas, pathology.
Dr. Robert L. Moore, Dallas, pediatrics.
Dr. Guy F. Witt, Dallas, psychiatry and neurology.
Dr. Frank M. Windrow, Ann Arbor, Mich., radiology.
Dr. Harry Cochran, Dallas, surgery.
Dr. Alfred I. Folsom, Dallas, urology.

Officers of the new board are Dr. Winans, chairman, Dr. Folsom, vice chairman, and Dr. Hill, secretary-treasurer. The board has selected the staff which will carry on the active teaching program. All other members of the Dallas County Medical Society will be included on the courtesy list. These staff appointments, presented on unanimous recommendation of the medical board, have been approved by the trustees for the year ending December 31. The staff will be composed of four classifications, as follows:

Consultants: Men who will not take an active part in direction of the program but who, because of their outstanding qualifications and experience, will be looked to for advice and counseling.

Attending Physicians: Men who have limited their work to one of the certified specialties and who have contributed much effort and interest to Baylor's teaching program in the past. From this group will be drawn most of the teachers and clinicians for the teaching program.

Associate Attending Physicians: Those who are qualified as specialists by their certifying boards or who have equivalent qualifications and who have shown much interest in the teaching program but who are less experienced professionally or in the community.

Junior Attending Physicians: Those just out of residency or internship, now working toward certification by their specialty boards, who wish to devote time toward assisting in the teaching program. As they gain experience these men, like the associate attending physicians, will be advanced to the higher classifications, thus building a reservoir of medical teaching talent for future development of the program.

VERMONT

Personal.—Dr. Paul K. French, Burlington, who recently retired from the Army Medical Corps with the rank of lieutenant colonel, has been promoted from associate professor to professor of clinical medicine at the University of Vermont College of Medicine, Burlington.——Dr. Stewart Ross, Rutland, has been elected a trustee of Middlebury College for a period of five years starting July 1.

Society News.—On January 15 Dr. William E. Brown, dean, University of Vermont College of Medicine, Burlington, addressed the Windsor County Medical Society at the Woodstock Inn, Woodstock, on the establishment of a state medical center at Burlington, built around the University of Vermont Medical School, by which it is hoped to provide specialized and clinical work for the benefit of Vermont residents and doctors. He discussed the same project before the Rutland County Medical Society and the Rutland Hospital staff at the Hotel Berwick, January 17.

Activities of State Medical Society.—During the past year the Vermont State Medical Society created the position of executive secretary and named Mr. John W. Brownlee as the first incumbent. Offices of the society have been set up at 128 Merchants Row, Rutland. The society also started the publication of a monthly *News Letter,* which carries discussions of national and local interest. The publication of a state medical journal is now under consideration. Officers of the state medical society chosen at a recent meeting of the house of delegates of the society include Drs. Frank C. Angell, Randolph, president-elect; Leon E. Sample, St. Albans, president; Ellsworth L. Amidon, Burlington, vice president; Benjamin F. Cook, Rutland, secretary, and David Martin, Essex Junction, treasurer. The next annual session will be held in October, the exact dates to be determined later.

VIRGINIA

Changes in Health Personnel.—Dr. William Grossman, Richmond, director of the bureau of communicable disease control, returned to the Virginia State Department of Health from the military service as of January 1. Dr. Donald K. Freedman, Washington, Surgeon (R), U. S. Public Health Service, who was on loan to the Virginia State Department of health and who has been acting as health officer of the Peninsula Health District, was withdrawn by the public health service effective Dec. 8, 1945.

Spring Graduate Course.—The Gill Memorial Eye, Ear and Throat Hospital announces its spring graduate course in Roanoke April 1-6. The course will cover ophthalmology, otology, rhinology, laryngology, faciomaxillary surgery, bronchoscopy and esophagoscopy. Among the participants in the course will be:

Dr. Louis H. Clerf, Philadelphia.
Dr. William R. Graham, Richmond.
Dr. George P. Guibor, Chicago.
Dr. William F. Hughes Jr., Baltimore.
Dr. James R. Jaeger, Philadelphia.
Dr. Merrill J. King, Boston.
Dr. Ferdinand L. P. Koch, New York.
Dr. Perrin H. Long, Baltimore.
Dr. James H. Maxwell, Ann Arbor, Mich.
Vice Admiral Ross T. McIntire, Washington.
Dr. Paul M. Moore Jr., Cleveland.
Dr. Werner Mueller, Boston.
Dr. Frank Payne, New York.
Dr. Charles A. Perera, New York.
Dr. Emund B. Spaeth, Philadelphia.
Dr. Isaac S. Tassman, Philadelphia.
Selman A. Waksman, Ph.D., New Brunswick, N. J.

WEST VIRGINIA

Personal.—At a meeting of the Public Health Council of West Virginia in Charleston, January 7, Dr. Walter E. Vest, Huntington, was reelected president for a fifth consecutive two year term; he has been a member of the council since 1933 and has served as its president since 1937.——Dr. Frederick C. Kluth, Charleston, U. S. Public Health Service, who has served as venereal disease control officer for Charleston and Kanawha County for the past three years, has been transferred to Columbus, Ohio, where he is in charge of a rapid treatment center similar to the Kanawha Medical Center, South Charleston.

Confidential Report Form for Tuberculosis.—A new confidential report form to be used for reporting tuberculosis has been adopted by the state health department and distributed to all local health departments. The new form replaces the old form, CD-8, which has been in use for several months. Local health departments are requested to report all new cases of tuberculosis on the new form and submit them weekly to the Collaborating Epidemiologist, State Health Department. The reports are to be treated as confidential and mailed under cover. While the card is at present used *only* by local public health departments, it is probable that the state health department will ask that the form be approved by the West Virginia State Medical Association so that it can be used by doctors over the state. The new form has already been approved by the Public Health Council.

Payment of Doctors' Bills.—A change in the regulations concerning the submission by doctors of bills for services rendered has been announced by Mr. E. B. Pennybacker, state compensation commissioner, effective immediately. All bills *must now be submitted in duplicate,* and medical reports must be filed before or at the same time bills are rendered. This change in procedure will protect the doctor who submits his bills within the prescribed ninety day limit, notwithstanding any delay in having the bill approved within that time by the subscriber or employer. The workmen's compensation act was amended at the 1943 session of the legislature so as to require the submission of bills within ninety days after services are rendered. Frequently the bills, which have to be approved by the employer, have not been returned to the compensation commissioner before the expiration of the time limit, which has resulted in a great deal of confusion, and delay in the payment of such bills. In the future, if no objection to the payment of the bill is received by the commissioner from the employer within fifteen days after it is submitted by the doctor, payment will be authorized to the same extent as if the bill had been regularly approved.

WISCONSIN

Physicians Honored.—Dr. George E. MacKinnon, who has practiced in Prentice and the surrounding area for thirty years, was honored when Price County set aside November 15 as "Dr. MacKinnon Day." The celebration included a parade, a banquet, a musical program and a community dance. Dr. MacKinnon graduated at Queen's University Faculty of Medicine, Kingston, Ont., in 1914. He started in practice in Tripoli in 1915, going to Prentice the following year.——Dr. Mina B. Glasier, Bloomington, enjoyed a community three day celebration of her eighty-sixth birthday, which was November 5. Dr. Glasier, an honorary member of the state medical society, was secretary of the Grant County Medical Society for thirty-five years, its president for one year, a member of the state board of health for fourteen years and recipient of the council award of the state medical society in 1932, according to the state medical journal. She has practiced in Bloomington for sixty-one years.

ALASKA

Personal.—Dr. David M. Cowgill has been appointed district health officer with the Alaska Territorial Department of Health, with offices in Anchorage. He was formerly health officer in Amarillo, Texas.

GENERAL

Campaign Against Noise.—The National Noise Abatement Council, in announcing its 1946 program, urges reestablishment of noise control on the agenda of all city planning commissions. The council will present noise abatement achievement awards to five cities in the United States which show the most conclusive evidence of noteworthy accomplishments of the elimination of needless street noise and in the reduction of noise in industry, in the office and in the home.

Meeting of Pediatric Board.—At the annual meeting of the American Board of Pediatrics in Atlantic City, Dec. 6, 1945, Drs. C. Anderson Aldrich, Rochester, Minn., was elected president, Donovan J. McCune, New York, vice president, and Lee F. Hill, 3309 Forest Avenue, Des Moines, Iowa, secretary-treasurer. On and after May 1, the application fee for the American Board of Pediatrics will be $100. The next written examination of the board will be held locally under a monitor, March 22. Oral examinations will be held in Cleveland April 27-28 and, if sufficient applications are received to warrant this examination, in San Francisco July 1-5.

Student Loan Fund for Work in Gynecology.—The woman's auxiliary of the Southern Medical Association at its recent annual meeting in Cincinnati voted to use its Jane Todd Crawford Memorial Fund as a student loan fund to help medical students or physicians from the South desiring to do postgraduate work in gynecology. The recipients are to be recommended by the dean of the medical school where they are in attendance or by the local medical society of which they are members. Approval was to be submitted by a committee of three elected by the executive board of the Woman's Auxiliary of the Southern Medical Association. The fund honors the first woman to submit to an ovarian operation, which was performed by Dr. Ephraim McDowell. Jane Todd Crawford is also honored annually with a special day named for her.

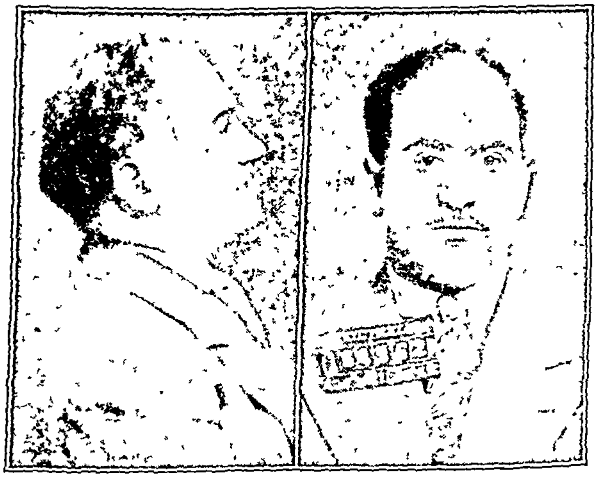
New Publications.—The Washington Institute of Medicine announces the publication of the *Quarterly Review of Pediatrics,* beginning with the February issue. Dr. Irving J. Wolman, Children's Hospital, Philadelphia, 1740 Bainbridge Street, Philadelphia 46, is the editor in chief. In addition, sixteen members comprise the editorial board. The institute also announces that it will bring out in March a *Quarterly Review of Urology.* Dr. Hugh J. Jewett, Baltimore, is the editor in chief. The object of this quarterly is to present a panoramic picture of the current world progress in urology through the publishing of abstracts and the indexing, as far as possible, of everything that has appeared in the world medical literature pertaining to urology. Henry J. Klaunberg, Ph.D., is president of the Washington Institute of Medicine, 1720 M Street N.W., Washington 6.

Record Set for Hospital Births.—Ninety-one out of one hundred of the babies born under the emergency maternity and infant care program in 1944 were born in hospitals as compared with seventy-six out of one hundred for all infants in that year, according to the Children's Bureau, U. S. Department of Labor, January 27. In ten states the record was even more remarkable, with less than 2 per cent of the births under the government program being home deliveries. Even in states where the percentage of home deliveries of such births was highest, it was far below the percentage for all infants. In Mississippi, for instance, of all births only 3 out of 10 took place in hospitals, whereas 7 out of 10 servicemen's babies cared for under the program were hospital born. It is estimated that almost $40,000,000 from federal funds has been paid to hospitals from state agencies.

Robert Goodhart Named Director of the Vitamin Institute.—Dr. Robert S. Goodhart, Forest Hills, N. Y., since March 1943 chief of the industrial feeding program division, War Food Administration, U. S. Department of Agriculture, has been named scientific director for the Institute for Vitamin Research, Inc. Dr. Goodhart recently returned from Japan, where he studied nutritional problems of the Japanese people. He expects to complete this project by March 1, when he will assume his new duties. The Institute for Vitamin Research was formed at a meeting at the Waldorf Astoria, New York, Jan. 29, 1945 (The Journal, Feb. 17, 1945, p. 414). It maintains headquarters in the office of its secretary, Henry K. Urion, of O'Connor and Farber, its attorneys, 120 Broadway. Its purposes are to maintain continuing research on "problems in nutrition, particularly as they relate to vitamins, to the end that the health and welfare of mankind may be improved through better nutrition." The institute proposes to make grants to individuals and institutions for research and to provide scholarships and fellowships. The institute also will study and adopt "proper standards for the manufacture and sale of vitamin products." Dr. Goodhart graduated at New York University College of Medicine-Bellevue Hospital Medical College in 1934.

Artificial Limb Program for Soviet Union.—The American Society for Russian Relief, Inc., has launched a million dollar program to obtain needed material for the rehabilitation of amputation cases in the Soviet Union. The program includes the attempt to equip a network of hospitals specializing in the care of amputees in the Soviet Union and a central factory with regional workshops in various Soviet Republics to manufacture artificial limbs. Everything will be supplied, from thousand dollar turret lathes and disk grinders to laundry equipment, surgical instruments and even doctors' and nurses' uniforms. Plans call for a central hospital in Moscow to be supplied with 2,000 beds, laundry equipment to handle 23,500 pounds of wash a day and all necessary medical equipment, including a complete chemical research laboratory. Attached to this hospital will be an artificial limb factory to be equipped with American machines and basic raw materials for the manufacture of limbs, including pressed felt, vulcanized fiber sheets, finishing lacquers, glues and copper nails. Along with basic machinery such as drill presses, duplicating lathes, welding machines, riveting machines, electric drills and sewing machines, the agency also is shipping hand tools, such as files, hammers, hack saws, nails and industrial electric vacuum cleaners for factory and hospital use. The project also includes equipping of regional hospitals in the various Soviet Republics with their own artificial limb work shops. After the initial operation at the central hospital and manufacture of the desired limb at the factory, the patient will be sent to the regional hospital nearest his home. Here he will convalesce and the final fitting of the limb will be made. An announcement stated that a number of amputation cases in the Soviet Union is so great that it has not yet been totaled and that civilians, including children, are still being maimed by exploding mines so cunningly buried that they cannot always be detected. The American Society for Russian Relief, formerly Russian War Relief, Inc., has its headquarters at 5 Cedar Street, New York 5.

Fugitive Physician Sought on Abortion Charge.—Dr. Louis G. Small, who on April 1, 1942 was arrested on the charge of abortion, is being sought by the District Attorney's Office of the County of New York. Small was indicted for and convicted of nine separate felonies of abortion and a general conspiracy to maintain a public nuisance, to wit, an abortion mill. After his conviction he was admitted to $12,000 bail pending appeal, but when the judgment of conviction was affirmed he forfeited his bail and took refuge in the state of Georgia. According to the District Attorney's Office, Small sought to defeat extradition proceedings by having himself arrested by a local sheriff on the charge of practicing medicine without a license in Georgia. The District Attorney's Office of the County of New York succeeded in establishing the right to his custody, but the physician defeated extradition by "escaping" on March 12, 1944 from the custody of the local sheriff charged with the duty of detaining him. The District Attorney's Office is of the opinion that while it has no record of Small's present whereabouts he is practicing medicine or operating an abortion mill somewhere within the United States. Small is said to travel usually with his wife, Florence Essl Small, who is described as being about 5 feet 7 inches in height and weighing 120 pounds. She is said to have blue eyes, blond hair with fair complexion and usually acts as a model and commercial artist. Small's conviction in New York for operating an abortion mill with two other physicians was reported in The Journal May 15, 1943 and his arrest in Georgia Dec. 4, 1943. On March 15, 1944 the Maryland State Board of Medical Examiners revoked a license obtained by him in December 1942. Small was born in Russia April 17, 1902. He obtained his premedical education at New York University and graduated at the University of Arkansas School of Medicine, Little Rock, in 1927.



Louis G Small, aged 43, height 5 feet 4 inches, weight 150 pounds, brown eyes, black hair, dark complexion, small black mustache.

Government Services

Hospital Leased to State of Georgia

The Surplus Property Administration has authorized the Federal Works Agency to negotiate a lease for five years with the state of Georgia for the Battey General Hospital at Rome, Ga. The lease will carry an option to purchase later. The hospital installation, recently declared surplus by the War Department, consists of approximately 160 acres of government owned land improved with fully equipped hospital buildings and various facilities necessary for the operation of the hospital. The state of Georgia declared that it had urgent need for increased hospital facilities for a tuberculosis sanatorium. It declared that its present state tuberculosis sanatorium will be converted into a mental institution or a female prison, both of which are urgently needed by the state. The Federal Works Agency has been authorized to issue immediately a temporary occupancy permit. Following a ten day notice of availability to all government agencies, and in the absence of an acceptable proposal from a holder of a higher priority or a proposal from any state or local government having a priority equal to that of the state of Georgia, the Federal Works Agency will negotiate the terms of the proposed lease.

Deaths

Alpheus Felch Jennings ⊕ Detroit; Harvard Medical School, Boston, 1910; born in Detroit June 22, 1884; assistant professor of clinical medicine at the Wayne University College of Medicine; extramural lecturer in postgraduate medicine at the University of Michigan; specialist certified by the American Board of Internal Medicine; member of the American Clinical and Climatological Association; fellow of the American College of Physicians; recently finished a term as chairman of the board of trustees of the Wayne County Medical Society; medical officer at Selfridge Field during World War I and, after serving as assistant chief of medical service at Camp Custer, ordered overseas, where he served with Evacuation Hospital number 21 in France; served with various units and discharged in May 1919 with the rank of major; consultant in medicine at the U. S. Marine Hospital; president of the board of trustees and chief of staff of the Charles Godwin Jennings Hospital, where he died November 16, aged 61, of carcinoma of the bladder and bilateral hydronephrosis.

Walter Scott Franklin ⊕ Santa Barbara, Calif.; Cooper Medical College, San Francisco, 1898; clinical professor of ophthalmology emeritus at the University of California Medical School in San Francisco, where he was on the staffs of the University of California Hospital and the Shriners' Hospital for Crippled Children; specialist certified by the American Board of Ophthalmology; member of the Western Ophthalmological Society and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; on the staffs of the Santa Barbara General Hospital, St. Francis Hospital and the Santa Barbara Cottage Hospital, where he died January 2, aged 67, of uremia due to hypertension.

Oliver V. Schuman ⊕ Columbia City, Ind.; Chicago Medical College, 1889; honorary member of the Indiana State Medical Association; formerly county and city health officer; served on the advisory board during the construction of the Indiana State Sanatorium at Rockville, where he served as a member and president of the board; for many years vice president of the Farmers Loan and Trust Company; helped to organize the woolen mills in Columbia City, serving on the board of directors from the beginning of the mill until his death; died October 23, aged 81, of coronary occlusion and diabetes mellitus.

Frederick Jennings Smith, Kankakee, Ill.; Miami Medical College, Cincinnati, 1905; member of the American Medical Association, Kansas Medical Society and the American Psychiatric Association; served during World War I; at one time medical inspector of the city schools in San Diego and on the staffs of the U. S. veterans hospitals in North Little Rock, Ark., and Palo Alto, Calif.; formerly assistant physician in neuropsychiatry at the Watertown State Hospital in East Moline; on the staff of the Kankakee State Hospital; died October 4, aged 65, of heart disease.

Laura Elizabeth McClure ⊕ Lansdowne, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1928; clinical associate professor of pediatrics at the Woman's Medical College of Pennsylvania; specialist certified by the American Board of Pediatrics, Inc.; member of the American Academy of Pediatrics; medical director of the Babies' Hospital and on the staffs of the Hospital of the Woman's Medical College and St. Christopher's Hospital for Children, all in Philadelphia; died in New Wilmington October 17, aged 41, of carcinoma of the ovary and broad ligament.

Joseph Schapiro ⊕ Union City, N. J.; Columbia University College of Physicians and Surgeons, New York, 1905; member of the American Orthopsychiatric Association; for many years medical director of the Union City public schools; at one time school physician; served overseas during World War I; on the courtesy staff of the Medical Center of Jersey City; on the staff of the North Hudson Hospital, Weehawken; senior clinician of the mental hygiene clinic of the Mount Sinai Hospital in New York; died November 13, aged 65, of coronary thrombosis.

Jacob Thorkelson ⊕ Butte, Mont.; College of Physicians and Surgeons, Baltimore, 1911; member of the American Association of Anatomists, Aero Medical Association and the Association of Military Surgeons of the United States; served as surgeon to the Montana State Hospital at Warmsprings; visiting surgeon to St. Ann's Hospital in Anaconda and St. James Hospital; lieutenant commander, medical corps of the U. S. Naval Reserve, not on active duty; formerly a Republican congressman from Montana; died November 20, aged 69.

Charles Bee Alexander, Alhambra, Calif.; Barnes Medical College, St. Louis, 1907; served in the intelligence service during World War I; on the staffs of the Garfield Hospital, Monterey Park, Los Angeles General Hospital and the Alhambra Hospital, where he died October 21, aged 70, of cerebral hemorrhage and diabetes mellitus.

George Anderson, Alpha, Ohio; College of Physicians and Surgeons, Baltimore, 1891; died October 19, aged 78, of uremia.

John Frederick Bening, Clarinda, Iowa; University of Nebraska College of Medicine, Omaha, 1904; member of the American Medical Association; past president of the Page County Medical Society; on the staff of the Clarinda State Hospital; died October 13, aged 69, of coronary thrombosis.

Charles James Berger, Pottsville, Pa.; Medico-Chirurgical College of Philadelphia, 1903; died September 4, aged 76, of bronchopneumonia and arteriosclerosis.

Chester Abram Brink, Pleasanton, Neb.; College of Physicians and Surgeons of Chicago, 1893; served as a member of the Valley County Board of Health, coroner of Valley County and physician to the Valley County Insanity Board; died October 21, aged 75, of cerebral hemorrhage and senility.

Samuel Slaughter Caruthers, Duck Hill, Miss.; Memphis (Tenn.) Hospital Medical College, 1905; served during the Spanish-American War and World War I; died in Pacific Grove, Calif., November 12, aged 69, of coronary thrombosis.

Lorin Cone Collins ⊕ Chicago; Northwestern University Medical School, Chicago, 1900; major in the medical corps of the U. S. Army during World War I, serving as post surgeon at Chanute Field; formerly on the staffs of the Children's Memorial and Lutheran Memorial hospitals; member of the associate staff of the Grant Hospital, where he died December 25, aged 69, of carcinoma of the prostate.

Thomas James Connolly, Crescent Springs, Ky.; Bennett Medical College, Chicago, 1913; died in St. Elizabeth Hospital, Covington, September 26, aged 71, of Parkinson's syndrome.

Charles Jacob Dietrich ⊕ Reading, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; member of the Radiological Society of North America, Inc.; on the staff of St. Joseph's Hospital; died September 10, aged 66, of hypertension and arteriosclerosis.

James Irenaeus Doyle ⊕ Rapid City, S. D.; Loyola University School of Medicine, Chicago, 1924; on the staffs of St. John's, McNamara and Black Hills General hospitals; died October 17, aged 50, of coronary occlusion.

Philip P. Fisher ⊕ Sharon, Pa.; College of Physicians and Surgeons, Baltimore, 1881; died September 22, aged 89, of cardiovascular disease.

Robert Alexander Fraser, New York; Trinity Medical College, Toronto, Ont., Canada, 1903; became medical director in 1913 of the New York Life Insurance Company, serving as chief medical director from 1934 to Sept. 1, 1945; past president of the Association of Life Insurance Medical Directors; died in Greenwich, Conn., November 1, aged 67, of heart disease.

John Philip Greene, Larchmont, N. Y.; Bellevue Hospital Medical College, New York, 1896; served as health officer and police and fire surgeon in Mamaroneck; died in the Grasslands Hospital, Valhalla, November 4, aged 71, of congestive heart disease.

Alice Alloway Hand, Cleveland Heights, Ohio; Western Reserve University School of Medicine, Cleveland, 1944; interned at the Metropolitan Hospital in New York; died in a hospital at Columbus October 30, aged 26, of Hodgkin's disease.

George Arthur Hawkins-Ambler, San Francisco; L.R. C.P., Ireland, 1885 M.R.C.S., England, 1889 and F.R.C.S., Edinburgh, Scotland, 1891; died in the San Francisco Hospital October 25, aged 83, of cerebral hemorrhage and arteriosclerotic heart disease.

Joseph Paul Hennerich Jr., St. Louis; Washington University School of Medicine, St. Louis, 1913; died October 16, aged 61, of coronary thrombosis.

Andrew Jackson Kellam, Canton, Texas; Baylor University College of Medicine, Dallas, 1913; died October 23, aged 65, of heart disease.

John Randal Knight, Eddy, Texas; Vanderbilt University School of Medicine, Nashville, 1893; for many years local bank president; died October 29, aged 77, of generalized arteriosclerosis.

Eugene Ross Linklater ⊕ Kenmore, N. Y.; University of Buffalo School of Medicine, 1905; served during World War I; health officer; formerly school physician; died in the Millard Fillmore Hospital, Buffalo, October 18, aged 62, of cerebral hemorrhage.

Ross George Loop ⊕ Elmira, N. Y.; University of Buffalo School of Medicine, 1897; fellow of the American College of Surgeons; served during World War I; during World War II in charge of the emergency medical division for civilian defense in Chemung County and associated with the Procurement and Assignment Service; consulting surgeon at the Arnot-Ogden and St. Joseph's hospitals in Elmira and Tioga County General Hospital in Waverly; died October 19, aged 69, of arteriosclerosis and heart disease.

Donald Leo Maddox, Philadelphia; Temple University School of Medicine, Philadelphia, 1917; died in the Norristown (Pa.) State Hospital September 2, aged 56.

Martin Teasley Maxwell, Robbinsville, N. C.; Southern Medical College, Atlanta, 1885; died in the Angel Hospital, Franklin, October 15, aged 85, of influenza and heart disease.

Charles W. Merkel, Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1905; also a graduate in pharmacy; died in Harriman, Tenn., October 28, aged 75, of angina pectoris.

Robert Hyndman Miller, Haleyville, Ala.; Chattanooga (Tenn.) Medical College, 1902; member of the American Medical Association; died October 17, aged 71, of carcinoma of the intestine.

Arthur T. Monismith ⊕ Fort Lupton, Colo.; Denver and Gross College of Medicine, 1904; died in St. Luke's Hospital, Denver, September 27, aged 65, of cerebral hemorrhage.

Harry Alfred O'Neal, Brookville, Pa.; University of Pittsburgh School of Medicine, 1911; died in the Warren (Pa.) State Hospital September 20, aged 59, of cardiorenal disease and diabetes mellitus.

Joseph Alexander Pinckard, Minneapolis; Missouri Medical College, St. Louis, 1896; died in the Kahn Memorial Hospital, Marshall, Texas, October 14, aged 75, of coronary occlusion.

Charles Teed Pollard ⊕ Montgomery, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1897; member of the American Medical Association; served during the Spanish-American War and World War I; died in the Hubbard Hospital November 4, aged 73, of amebic dysentery.

Aba Reiss, Philadelphia; Medizinische Fakultät der Universität Wien, Vienna, Austria, 1901; died in St. Luke's and Children's Medical Center September 2, aged 67, of coronary occlusion.

Harold Fuller Sawyer ⊕ Pleasant Ridge, Mich.; Detroit College of Medicine and Surgery, 1927; interned at the Grace Hospital in Detroit; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve on Dec. 18, 1942; service terminated Aug. 26, 1943; on the staffs of the Grace and Woman's hospitals in Detroit; died October 8, aged 43, of coronary thrombosis.

Bernhard Harvey Schmidt ⊕ Davenport, Iowa; Rush Medical College, Chicago, 1897; life member of the Iowa State Medical Society; past president of the Scott County Medical Society; formerly city physician; served on the staff of the Mercy Hospital, where he died October 18, aged 70, of coronary thrombosis.

Mary Dorothea Skinner, Seattle; University of Oregon Medical School, Portland, 1903; died October 20 of exhaustion and hemiplegia.

Herbert Leonel Taylor ⊕ Portsmouth, N. H.; Jefferson Medical College of Philadelphia, 1902; fellow of the American College of Surgeons; past president of the Portsmouth Medical Society, Rockingham County Medical Society and New Hampshire Medical Society; bank director; member and past president of the staff of the Portsmouth Hospital; consulting surgeon, York Hospital, York Village, Maine; died October 24, aged 68, of brain tumor.

Frederick William Van Lengen, Syracuse, N. Y.; Syracuse University College of Medicine, 1898; member of the American Medical Association; served as demonstrator of anatomy at his alma mater; on the staff of the People's Hospital; for many years physician for the Syracuse University football teams; served as president of the alumni association of the Syracuse University College of Medicine; died October 15, aged 71, of coronary occlusion.

Joseph Clinton Vaughan, Rich Square, N. C.; Medical College of Virginia, Richmond, 1915; member of the American Medical Association; served during World War I; died in the Duke Hospital, Durham, October 13, aged 56, of chronic nephritis.

Robert Mayhue Ware ⊕ Fitzgerald, Ga.; University of Georgia Medical Department, Augusta, 1902; medical director of the Fitzgerald Hospital; died October 23, aged 68.

John B. Weston, Hemet, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1878; served as mayor of Hemet and member of the city park commission; honorary park commissioner; in recognition of his philanthropy and interest in beautifying the community, the city council named the park in his honor; at one time health officer of Duluth, Minn.; died September 7, aged 91, of carcinoma of the gallbladder.

Adam George Youngman ⊕ St. Louis; St. Louis University School of Medicine, 1912; on the staffs of St. Anthony's Hospital and the Lutheran Hospital, where he died October 20, aged 65, of coronary thrombosis.

DIED WHILE IN MILITARY SERVICE

Charles John Allen ⊕ *Lieutenant Commander, U. S. Navy,* Milwaukee; Marquette *University School of Medicine,* Milwaukee, *1939; interned at the Milwaukee Hospital;* entered the U. S. Navy *as a lieutenant (jg) in* July 1940; served *as surgeon aboard a destroyer for twenty-two months; transferred to the Naval Hospital in* Corona, Calif.; died Feb. 1, 1944, aged 31, as the result of ship collision at sea while attached to the U. S. S. *Washington.*

John Newton Dunn ⊕ Blackstone, Va.; Medical College of Virginia, Richmond, 1931; at one time associated with the Civilian Conservation Corps in the West; began active duty as a captain in the medical corps, Army of the United States, on March 11, 1942; promoted to major; served as chief surgeon with a fighter group in England and Russia; died in England Sept. 3, 1945, aged 43, of coronary occlusion.

Victor Gang, New York; Rush Medical College, Chicago, 1937; interned at the University of Chicago Clinics in Chicago and Lenox Hill Hospital; served a residency at the Murray Hill Hospital; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on Feb. 9, 1941; promoted to lieutenant and lieutenant commander; drowned in the Philippine Islands Sept. 3, 1945, aged 32.

Abraham Gellman, Brooklyn; Long Island College of Medicine, Brooklyn, 1940; interned at the Montefiore Hospital for Chronic Diseases in New York and the Kings County Hospital in Brooklyn, where he served a residency; began active duty in the medical corps, Army of the United States, as a first lieutenant on Aug. 22, 1942; later promoted to captain; died in Luzon Feb. 11, 1945, aged 28, of injuries received when his gun accidentally discharged.

Joseph Rawlins Ginther ⊕ Norristown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1929; member of the American Medical Association; interned at the Homeopathic Medical and Surgical Hospital and Dispensary in Pittsburgh; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve on Dec. 21, 1942; stationed at the 12th Naval District base in San Francisco; died July 1, 1945, aged 41, of acute cirrhosis of the liver.

Joseph Nash, New York; University and Bellevue Hospital Medical College, New York, 1926; member of the American Medical Association; fellow of the American College of Surgeons; specialist certified by the American Board of Surgery; assistant professor of clinical surgery at his alma mater, now known as the New York University College of Medicine; on the staff of the Bellevue Hospital; house physician at the Hotel Plaza; author of "Surgical Physiology," a textbook published in 1942; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on June 9, 1926; began active duty in the same rank on Aug. 1, 1941; assistant chief of the surgical service in the Lovell General Hospital in Fort Devens, Mass.; promoted to captain and major in the medical corps, Army of the United States, in 1942; in December 1943 went overseas with the rank of lieutenant colonel; appointed chief of the surgical service of the Ninetieth General Hospital in England; arriving in Normandy early in the invasion of Europe, served as a surgical consultant of the 819th General Hospital and as surgical chief of the Ninetieth General Hospital Unit; died in Germany Nov. 8, 1945, aged 43, of injuries received in an aircraft accident.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 12, 1946.

London's War Ordeal: Comparison of Vital Statistics with Those of New York

The report on the health of the county of London for 1944 has just been published. The term "county of London" applies only to the inner half of the metropolis, which is administered by the London County Council. The population of greater London exceeds 8 million, but that of the county was only a little over 4 million in the last prewar year of 1918. During the war it fell to 2½ million. For the first time since the outbreak of the war, population statistics have been allowed to be published. Mothers, children and hospital patients were evacuated to safer districts as the attack developed. The total number of civilians killed in London during the war was 17,811. In spite of the ordeal of bombing, the health rate in 1944 remained satisfactory. The birth rate was 18.1 and the death rate 16.7 per thousand. The infant mortality was 51 per thousand live births. Before the war there were 814,498 dwellings. Of these 709,518 were affected by the bombing, about 70,000 were completely destroyed and 56,000 were rendered uninhabitable and 66,000 seriously damaged. The London ambulance service conveyed to hospitals or first aid posts 46,709 persons injured by bombing. During the war there were 660 bombing incidents at the County Council's 100 hospitals, of which 17 had to be evacuated. Out of a total of 1,200,000 patients admitted during the war period 257 were killed in air raids and 5,000 hospital beds were destroyed.

The report makes an interesting comparison between the vital statistics of London and of New York. The population of New York is about a million less than that of greater London but about thrice that of the county of London. The birth rate of London in 1944 was 18.1 against 16 in New York. In London the death rate was about 50 per cent higher and the infant mortality 70 per cent higher than in New York. The maternal mortality was about the same for the two cities. Diphtheria is on the decrease in both cities, but, allowing for difference of population, the disease is fifteen times more prevalent in London. The mortality from appendicitis is nearly the same. In London cancer mortality is about 40 per cent higher. The mortality from diabetes in London is only 25 per cent of that in New York, from cancer about 40 per cent higher, from pulmonary tuberculosis about twice and from other forms between three and four times that in New York.

The European Drug Trade

During the war the importation of large quantities of German drugs ceased, and British manufacturers produced the more important ones. Seven of the large British firms which manufacture drugs have formed a company which hopes to supply 200 million new customers on the European continent formerly supplied by the German chemical trust I. G. Farbenindustrie. The new firm is the British-European Pharmaceutical Company, Ltd. Besides supplying Europe with the products marketed before the war, the British company will export many new drugs produced during the war by British chemists.

The Diagnosis of Cancer

In the House of Commons Mr. Somerville Hastings, laryngologist, asked the minister of health to provide lectures for general practitioners on the early recognition of cancer. He stated that there are about 70,000 deaths annually from cancer and that a large proportion of cancer patients obtain specialist treatment too late. Mr. Hastings reported that where such lectures have been instituted they have been much appreciated and well attended by general practitioners. Mr. Aneurin Bevan, minister of health, replied that the purposes sought by Mr. Hastings could perhaps be best attained by encouraging early and frequent consultations between general practitioners and specialists in the work of diagnosis and treatment. Organized arrangements are now being developed under the Cancer Act of 1939 as far as present circumstances permit.

THE NETHERLANDS

(From Our Regular Correspondent)

AMSTERDAM, Jan. 20, 1946.

War Sequels

The Netherlands of 1940 were thoroughly organized, well equipped with most necessities and, in comparison with other European countries, at a high level of social well being. There were nearly 9 million inhabitants, with a good average education. Ten universities and high schools provided professional education and information in science. Modern industries kept their staffs in touch with improvements. In the war large parts of cities and towns were destroyed, among them the Hague, Rotterdam, Groningen, Arnhem, Middelburg, Nijmegen, Vlissingen and Venlo, either by action or by attempts to transform these places into strongholds, with tank traps and fortifications stretching across densely populated urban districts. This involved evacuation or death of the inhabitants and destruction of their possessions and dwellings. In addition, many hundreds of houses at Amsterdam and elsewhere were exposed to destruction by deporting people and confiscating their possessions. During the winter of 1944-1945 the wooden parts of these houses were pulled down for fuel until the walls collapsed. Industries were robbed of machines and tools, libraries of books, institutes of their instruments. Higher education was disorganized by the dismissal and imprisonment of teachers or by inviting the students into Nazi organizations, which membership more than 80 per cent refused. As a result of this attitude they were deported to Germany for forced labor or sent to concentration camps, where many of them perished miserably. Other actions against intellectual life were too numerous for a short description. Most periodicals were curtailed so that they ceased to be sources of information. Food rations steadily decreased from 1,842 calories per person in 1941 to 1,480 calories in 1944. In the western provinces, whose liberation was delayed till May 1945, the rations dropped rapidly during the last year to 420 calories despite Red Cross aid from Sweden, Switzerland and Portugal. Conditions were disastrous at the date of liberation, adding starvation disease to others then already prevalent. Deliberate starvation inflicted on the country, rather than military action, increased the loss of life. Casualties due to all causes including land, sea and air action amount to above 200,000, or more than 22 persons per thousand inhabitants.

Recovery of urban life has advanced spectacularly since the liberation. Rations are back to 2,150 calories by now and light, gas and fuel are almost adequate, thanks to an exceptionally mild winter. Transport performed miracles with terribly depleted material; during the last months of German occupation even the electrical leads which supplied an important part of the railway system were pulled down.

But we are still lamentably handicapped. Our students, anxious to learn and to catch up, do not have modern textbooks; we still need periodicals, books and references to work done or in progress in the free world during the war. By private initiative a few workers were able to gain access to scientific literature, but the majority are still starving for information. It would be a fitting gesture to give our scholars literature and appliances in the hope of future financial adjustments with reinstatement and intensification of intellectual intercourse. Many promises have already appeared in our public press suggesting satisfactory conditions to the man in the street, but for the scholar himself but little has materialized.

Anniversary of Amsterdam University

January 8 was the 314th anniversary of the founding of Amsterdam University, celebrated in the great hall by a public meeting. Woerdeman, professor of anatomy, read a paper on the present state of the study of embryonic induction. On the same occasion two honorary doctor degrees were awarded; one of them—in medicine—was conferred on Elisabeth Dingemanse of the pharmacotherapeutic laboratory in recognition by the Faculty of Medicine for her research on insulin, sex and hypophysial hormones and the detection of nicotine: its chemistry, purification and assay by colorimetry and chromatography. A degree *honoris causa* in medicine is highly exceptional at our university, indicating a reward for keen and expert work.

In December 1945 the Leiden hygienist Professor P. C. Flu died at the age of 64. He was known as an authority on tropical bacteriology and hygiene. His son was killed by the S. S. in a Leiden street while visiting patients two years ago.

The chair of biochemistry of Utrecht University was awarded to H. G. K. Westenbrink, biochemist conservator of Amsterdam University.

BOLIVIA

(From Our Regular Correspondent)

La Paz, Jan. 5, 1946.

The Rockefeller Foundation in Bolivia

In May 1932 a devastating yellow fever epidemic flared up in Santa Cruz, which is a vital center of communications between the east and the west of the country. The Rockefeller Foundation, working then in the Chanaan Valley in Brazil on a similar problem, was asked for help. Two American physicians, Dr. Soper and Dr. Walcott, were sent by the health division of the foundation to La Paz. There had been 50 deaths due to yellow fever in Santa Cruz when Dr. Walcott started his work by organizing a training center for the fight against the Aedes aegypti mosquito, which infested all the dwellings in Santa Cruz. So successful was the foundation that the last yellow fever case in Santa Cruz was registered in August 1932, only two months after work was begun. The origin of that epidemic was later traced to a case of imported jungle yellow fever.

The anti-Aedes campaign was not limited to Santa Cruz alone but was soon extended to thirteen smaller places; viscerotomy services were started to provide liver specimens from the dead. As the result of the work done by the foundation, Santa Cruz is today practically free from any kind of mosquitoes, a grave menace before. A yellow fever case has not been reported there since 1932.

Another dangerous yellow fever epidemic was reported in 1936 from the tropical districts Beni and Pando, in the north of the country in the valley of the Amazon. Some 1,300 cases were diagnosed and 56 deaths were traced to that disease after examination of liver specimens. Other hundreds of deaths were probably due to yellow fever, but definite diagnosis could not be established, as liver specimens could not be secured because of the lack of communications and other difficulties. The epidemic area was a large one, extending to the western border of the Cordilleras to altitudes of 500 meters above sea level.

In the Yungas region near La Paz, several smaller epidemics were registered between 1939 and 1942. Another outbreak occurred in Todos Santos, the last river port, reached by boat in the journey up the Amazon and its tributaries. As soon as these outbreaks became known, the Rockefeller Foundation immediately sent personnel to eliminate Aedes aegypti and to establish viscerotomy centers and other services. Vaccinations against yellow fever were started in 1938, and by now over 34,000 people in exposed areas have been vaccinated. Aedes aegypti is actually not found in any of the towns of this country. A constant control is exercised and the viscerotomy service has extended to sixty-five places; liver specimens are sent to the central field laboratory of the foundation at Santa Cruz. Vaccination teams are constantly visiting the exposed areas, and every launch coming up the rivers is inspected and fumigated. Results are striking: there are hardly any yellow fever cases registered.

The National Health Department suggested in 1942 that the foundation should provide services also for malaria and ancylostomiasis, endemic diseases affecting an estimated 50 per cent of the total population in large territories of Bolivia. The foundation took charge of this problem. In the fertile valleys near La Paz work was difficult because of the constant menace of malaria; pseudopunctipennis was found to be the vector in some places even up to 2,600 meters above sea level. In 1943 the foundation started a large scale program there as well as in the valleys of Cinti and Mizque. Two health centers were established and staffed with physicians and nurses, free drugs were distributed and sanitation work was started to eliminate mosquito breeding places. The work was most successful. After only two years many places are practically mosquito free.

In the valley of the tributary streams of the Amazon, the foundation is fighting widespread ancylostomiasis. A survey made among school children there showed that many of them are hosts for one or several intestinal parasites; 80 per cent have ancylostoma, and the average hemoglobin value is as low as 50 per cent. It is in these regions that most of Bolivia's rubber is produced, and a surplus of farming products could be produced if there were enough healthy laborers. The foundation started a house to house survey to teach the necessity of individual sanitation in every dwelling. It aided in the construction of adequate lavatories and maintained free dispensaries.

The chairman of the foundation (Special Service of Prophylaxis against Yellow Fever, Malaria and Uncinariasis) is Dr. Henry P. Carr, an American physician who has worked in Bolivia since 1942; previously he had been stationed in Cuba, Mexico and Peru. He is assisted by a fairly large staff of Bolivian physicians, nurses and other sanitation personnel; specialists in sanitary problems are called from the United States whenever needed. A training center is in operation to provide the necessary personnel. The work of the several dispensaries is most satisfactory; sixty-nine viscerotomy posts are operated all over the tropical districts. Sanitation work in several areas has been successfully completed. A large scale educational program for children and adults is in operation.

Marriages

Ralph Burk Dawson, St. Louis, to Miss Nancy Scott Causey of Greensboro, N. C., in New York, November 22.

Bedford F. Boylston, Aiken, S. C., to Miss Isabel Brickley, Merchantville, N. J., in London, England, December 10.

Joseph Theodore Andrews, Harlan, Ky., to Miss Alice Charlotte Merry at Delphos, Ohio, December 15.

John Thomas Goodgame, Chattanooga, Tenn., to Miss Elizabeth Wilder of Clearwater, Fla., December 26.

Ralph DeCicco, Des Moines, to Lieut. Therese Ingrato, WAC, of Green Island, N. Y., December 11.

Frederick Fletcher Adams Jr., Columbia, S. C., to Miss Doris Marcia Gruber in Charleston recently.

Gray Carroll Buck Jr. to Miss Darthula Hardie Hendrick, both of Birmingham, Ala., November 15.

Mark W. Dick to Dr. Louise F. Schnute, both of Grand Rapids, Mich., in December.

Correspondence

IMPORTANCE OF RH FACTOR

To the Editor:—In The Journal, Dec. 29, 1945 I note the communication from Dr. Ralph Luikart in which he states that for almost a year he has instituted the determination of the Rh factor on his obstetric patients and that in the last six months he has been doing so routinely.

I wish to state that I have instituted this method in my own office for almost two years and in my service at the Beth-El Hospital for the past year and a half. I brought this to the attention of the Brooklyn Gynecological Society in a paper, "The Rh Factor in Obstetrics," which was published in the *Journal of Obstetrics and Gynecology* of September 1945. In that paper I called attention to the fact that in certain communities the Rh factor determination is more important in the saving of infant lives than is the Wassermann test. In a review of over 5,000 charts I did not encounter a single case of syphilis or a positive Wassermann reaction and yet, according to the state law, it was done routinely. I then urged that the Rh factor determination in all pregnant women be made as mandatory as the Wassermann test and I am glad to see the statement of Dr. Luikart that the Nebraska State Health Department is offering that service free.

I am sure that the time is fast approaching when it will be made a routine in all states where the Wassermann test is demanded.

Jacob Halperin, M.D., Brooklyn.

BLOOD GROUPING TESTS IN INFANCY

To the Editor:—I wish to endorse Dr. Edgar's suggestion (The Journal, January 12, p. 107) that Dr. Harville (*ibid.*, Nov. 17, 1945, p. 801) check the blood grouping tests in the family where he found a mother of group AB and a child of group O, and that the result be published in The Journal. This may forestall a great deal of trouble for those who are called on to testify in courts in cases of disputed paternity. It is possible that two factors may have contributed to the erroneous result in Dr. Harville's case (and erroneous it will no doubt turn out to be): The mother may be AB, subgroup A_2B, and the child will then be A_2, a subgroup in which the red cells are agglutinated less readily than in subgroup A_1, especially in the newborn. That is the reason why it is recommended not to do blood grouping tests in infants less than 1 month of age.

To this may be added the relatively large amount of transfused blood of group O, which, being Rh negative, remains in the circulation for a considerable time and thus may make the detection of the infant's own group A that much more difficult. In some cases of severe hemolytic anemia of the newborn the transfused blood may be the only one present in the circulation for some time until the infant begins to produce its own red cells.

Israel Davidsohn, M.D., Chicago.

KETOSURIA AND KETONURIA

To the Editor:—The Journal of Oct. 6, 1945 has just come to hand and I have read with much interest the editorial on ketosis on page 448. I notice that the term "ketosuria" is used to mean excretion of ketones in urine. I do not know if this term is commonly so applied in the United States, but it seems to me liable to cause confusion. I suggest that "ketosuria" should be reserved to mean the presence of ketoses (usually fructose) in urine and that the term "ketonuria" should be used to mean the presence of ketones in urine.

James C. Eaton,
Victoria Infirmary,
Glasgow, Scotland.

"PAROXYSMAL ABDOMINAL PAIN"

To the Editor:—Referring to the comment anent the article "Paroxysmal Abdominal Pain" published in the December 29 issue of The Journal, I submit the following:

In none of the 6 cases reported was there any specific mention made that a definite allergen was the causative factor which precipitated the attacks of abdominal pain. In the first case it was clearly stated that the author believed "the original injection of diphtheria antitoxin had produced an angioneurotic edema of the brain with subsequent changes in the cerebral cortex which predisposed to abnormal cerebral discharges." This patient had been studied by several prominent allergists, had been given the gamut of the usual tests and had been placed on various diets, all to no avail. Were there a specific allergen operative in the production of this patient's seizures, they certainly would have continued after treatment with anticonvulsants as well as prior to therapy. The latter applies as well to the remaining cases. Cases 2, 4, 5 and 6 had the usual studies for allergens, which yielded no positive data.

I do not mean to imply by this, however, or by the cases reported, that allergies may not produce the type of abdominal epilepsy which I have described. I agree that an allergic basis may be the substratum in some cases, and Winkelman and Moore have reported abdominal pain occurring as a partial epileptic manifestation in patients responding to certain allergens (Allergy and Nervous Diseases, *J. Nerv. & Ment. Dis.* **93:**736 [June] 1941).

With respect to the suggestion that metrazol be used to precipitate an attack, may I say that I believe the evidence as given in the detailed history was sufficient to fall within the criteria outlined for the convulsive state. Furthermore, metrazol might produce only a motor epileptic display without sensory abdominal representation. Having had considerable experience with the convulsive seizures induced by metrazol, I would feel very reluctant to submit my patients to such a drastic test when the history, examination, electroencephalographic studies and response to anticonvulsant therapy have, I feel, amply demonstrated the nature of the disorder.

Matthew T. Moore, M.D., Philadelphia.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in The Journal, Feb. 9, page 372.

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Part III. Various Centers, March. Exec.-Sec., Mr. E. S. Elwood, 225 S. Fifteenth St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Dermatology & Syphilology: *Written. Group B.* April 22. *Oral. Group A and B. June 6-8.* Final date for filing application is March 1. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

American Board of Internal Medicine: *Oral.* Philadelphia, May 9-11. Final date for filing application is March 15. San Francisco, June *27-29*. Final date for filing application is April 15. Asst. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

American Board of Ophthalmology: Chicago, Oct. 9-12. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

American Board of Otolaryngology: *Chicago, May 22-25.* Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

American Board of Pediatrics: *Written.* Locally, March 22. *Oral.* Cleveland, April *27-28* and *San Francisco, July 1-5.* Sec., Dr. Lee F. Hill, 3309 Forest Ave., Des Moines, Ia.

American Board of Psychiatry & Neurology: Chicago, May 24-25. Final date for filing application is February 1946. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., N. W., Washington 6, D. C.

American Board of Surgery: *Written. Part I.* Various centers, October. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia 2.

American Board of Urology: *Oral.* Chicago, *February 1947.* Final date for filing application is Nov. 15. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Uterine Tumor Mistaken for Pregnancy.—The patient, a divorcee, had some irregularity in her menses and excessive flow and pain when they occurred. Dr. Deppen, a specialist in internal medicine, whom she consulted, made a diagnosis of pelvic tumor. Determining that an operation was necessary and since he did no surgery, he referred the case to Dr. Johnson, who operated, March 2, 1938, while the patient was "flowing," removing, however, only a diseased appendix. Apparently, prior to the operation, Johnson, suspecting pregnancy, disagreed with the diagnosis made by Deppen. He did not inform Deppen of his disagreement and Deppen was not present at the operation. Later Johnson advised the patient, her sister and Deppen that the patient was pregnant. About two weeks later a Friedman test, made at Deppen's suggestion at the hospital at which the patient was confined, had a positive reaction, indicating pregnancy. The patient left the hospital three weeks after the operation. She continued to have pain and uterine hemorrhages. On March 28 Deppen referred the case to Dr. Harvey, a specialist in obstetrics and gynecology, who examined her over a period of three weeks. The Friedman test, among others, was made, with a negative result. Nevertheless, Harvey was uncertain as to whether the patient's condition was one of pregnancy or of uterine tumor. He waited and applied other tests on the theory that the uterus, if a fetus was present, would increase in size; but the uterus did not so increase, and a second Friedman test was negative. The hemorrhages increased, and Harvey operated. On visual examination the uterus did not contract on stimulation and was "paler" than usual for a pregnant uterus. To him this indicated a tumor and that even if a fetus was present it was not alive. Accordingly, believing it necessary to save his patient's life, he removed the uterus. Examination of the organ by a pathologist revealed the presence of an "inside" tumor, even though, in his opinion, the uterus had "the [outward] appearance and consistency of a pregnant uterus."

Subsequently Dr. Johnson died and the patient brought suit for damages for malpractice against his administratrix. The gist of the action was that while Johnson was employed to remove the "tumor or abscess" in the uterus, without the patient's knowledge or consent, he removed her appendix and, "disregarding the tumor or abscess then present in plaintiff's body, failed and neglected to remove said tumor abscess" and thereby the plaintiff was caused to have a second operation. The action was further based on an allegation that Johnson negligently and falsely stated to other persons that the patient, an unmarried woman, was pregnant. At the trial the patient testified that she first saw Johnson the afternoon before the operation, when he came to her hospital room, removed the sheet covering her body, placed his hand on her abdomen and said "We will operate for a tumor." The entire examination covered two or three minutes and Johnson, so she stated, made no further examination or tests and took no history. There was introduced in evidence certain portions of her hospital records. One of these was referred to as the "summary" record, was signed by Johnson, and contained the following notations, among others:

> Under the title of "Chief Complaint" . . . "Severe pain pelvis. Vaginal discharge. Occasionally blood in discharge. Unable to work. Constipated; has had no regular normal flow for several months"; under "Onset and Course" the following: "Has had discharge for several months. Bartholin gland abscess opened and drained. Last two weeks increased pelvic pain with increased flow at periods and considerable discharge"; and under "Physical Examination" the following: "Abdomen: Upper Tympanitic. Lower, rigid and painful in right lower quadrant. Rounded mass, mid line, reaching nearly the umbilicus. Considerable vaginal discharge. No Blood."

Another record introduced was entitled the "Record of the Operation" and was also signed by Johnson, showing a "Preoperative" diagnosis of "Appendicitis sub-acute. Pregnancy? Pelvic adnexal disease." His "Postoperative Diagnosis" entry was "Ditto" written under "Pelvic adnexal disease," followed by "Pregnancy—4 mo. Appendicitis s. a." His "Gross Pathology" entry was "Pregnant uterus 4 mo. appendix—deeply injected adherent to rt. ovary region." It further shows "Operation" followed in writing by "Appendectomy." The "Summary" record showed under "Preliminary Diagnosis" the same entries recited and under "Final Diagnosis" was recited "Appendix sub acute. Pregnancy 4 to 4½ mos. Pelvic adnexal dis." and following the printed words "Indications for Operation" was the entry "Appendix acute. Pelvic adnexal disease. Pregnancy (?) suspected." From the evidence it further appeared that when Johnson operated "there was no emergency requiring an immediate operation." There was also introduced the testimony of expert medical witnesses that where a diagnosis of pelvic tumor is made and there is a suspected pregnancy, as there was here, several tests should be made and that question determined before an operation is undertaken. Failure to do that would be carelessness and negligence on the part of the surgeon. The evidence of the experts was further that ordinary preoperative tests can determine whether or not a pregnancy exists; and that where there is no emergency and the surgeon disagrees with the diagnosis of the referring physician, and does not know what tests the referring physician has made, nor what those tests indicated, the surgeon should make the tests and examinations or have them made and know the results before operating. Further, the medical witnesses agreed that neither the Friedman test, nor menstruation or the lack of it, are infallible indications. There are tests, however, which the surgeon should have made and taken into consideration in arriving at his ultimate conclusion. At the close of the evidence the trial court refused to direct a verdict for Johnson's administratrix and the jury returned a verdict for the patient, on which judgment was entered. An appeal to the Supreme Court of Nebraska eventuated.

To determine the liability of the operating physician under the present circumstances the court discussed applicable principles of law and summarized them somewhat as follows: Where a patient's physician informs a surgeon of the diagnosis which the physician has made and, with the authority of the patient, employs the surgeon to perform an operation which the physician deems advisable or necessary, the surgeon may rely on the diagnosis of the physician and is not required to make an independent diagnosis before operating, in the absence of information or conditions which would put the surgeon on inquiry as to the correctness of the physician's diagnosis and the advisability or necessity for the operation. Where, under the aforementioned conditions of employment, the surgeon, relying wholly on the physician's diagnosis, operates and during the course thereof discovers facts or conditions which suggest a reasonable basis for a different conclusion from that arrived at by the physician, which, if true, would make the proposed operation inadvisable or unnecessary, and there exists no emergency requiring him to proceed, the surgeon is not negligent if he refrains from completing the operation until a further proper diagnosis based on the newly discovered facts or conditions is made, and a proper course of action based thereon is determined. Likewise, where, under the foregoing conditions of employment, and before performing the operation, the surgeon discovers facts or conditions which appear to contradict the physician's diagnosis, or which cause the surgeon to question the correctness of the physician's diagnosis or to reach a different diagnosis, with the result that a different or no operative treatment is indicated, and there is no emergency, and the surgeon operates without making an additional and proper diagnosis to determine the questions presented and the action to be taken, the surgeon is negligent and liable to respond in damages for such injury and detriment to the patient as proximately follows.

The court accordingly believed that the trial court did not err in refusing to direct a verdict in favor of the surgeon's administratrix.

However, the Supreme Court found it necessary to reverse the judgment of the trial court and to remand the cause for further proceedings because of certain errors committed by the trial court In the first place, the trial court in instruction No. 1 to the jury set out plaintiff's allegation of negligence that "During the operation, and without the previous consent and without the knowledge of the plaintiff, the defendant (Dr. Johnson) removed her appendix." In his instruction No. 3 he advised the jury of plaintiff's burden of proving that Dr. Johnson was "negligent in his treatment of the plaintiff in *some particular* as alleged in the petition," and that "If plaintiff has proved the above propositions by a preponderance of the evidence and that the *one or more* of them was the proximate cause of said damage to the plaintiff, then and in that case you will find for the plaintiff." There is no evidence, said the Supreme Court, that plaintiff consented to the removal of her appendix or that it was done with her knowledge. The evidence is all to the contrary. The evidence of Dr. Deppen, however, is that Dr. Johnson, finding the condition of the appendix as he did, should have removed it, and it was right that he did. There is no evidence to the contrary. Moreover, there is no evidence that the removal of the appendix in any wise caused any of the damage for which plaintiff sought to recover. That issue should not have been submitted to the jury. There is no way by which it can be determined here what, if any, part of the verdict was given based on the removal of the appendix. We deem the error to be prejudicial.

In the second place, the trial court submitted to the jury that "During said operation defendant (Dr. Johnson) examined and handled the uterus and saw, or by the exercise of ordinary care and skill would have ascertained the condition of the uterus as it was, affected with said tumor or abscess." We find, said the court, no evidence that Dr. Johnson "handled the uterus." Neither is there evidence that, *after* he had exposed the uterus, he could "by the exercise of ordinary care and skill" have ascertained that the uterus was affected with a tumor. The test of stimulation that could then have been made with the uterus in place was admittedly inconclusive. The evidence of plaintiff's experts, however, was that to make a definite diagnosis after the uterus was exposed would have required that it be opened, as was done in the laboratory, and that that could not be done in place without grave danger to the plaintiff. When he had proceeded that far, Dr. Johnson was confronted with either removing a uterus which he believed contained a fetus, with the resulting death of the fetus if alive, and the sterility of the plaintiff, or leaving the uterus in place. He elected not to proceed. The expert witnesses of plaintiff do not indicate other than that he proceeded in the exercise of a proper professional judgment at that time. We are of the opinion that the trial court erred in submitting this instruction to the jury and that it was prejudicial.

Thirdly, in instruction No. 2, the trial court "summarized" to the jury the claim of the patient as follows: "Plaintiff claims that the physician and surgeon was careless and negligent in advising an operation without sufficient examination and in performing said operation improperly, and that said negligence and carelessness was the direct and proximate cause of plaintiff's damages" Dr. Johnson did not advise an operation. He performed one and, according to the evidence, without sufficient examination and diagnosis The instruction refers to the "physician and surgeon," who, it is claimed, "was careless and negligent in advising an operation." Dr. Deppen advised the operation. He was not a party to the action, nor is it claimed that he was negligent or careless. The effect of the instruction was to wipe out the specific recital of plaintiff's claims and to submit to the jury "to consider" an inaccurate and misleading summary. The instruction should not have been given and was in our opinion prejudicial to the defendant.

As stated before, the judgment in favor of the patient was reversed and the cause remanded for further proceedings —*In re Johnson's Estate: Douglas v. Johnson, 16 N. W. (2d) 504 (Neb., 1944).*

Bureau of Investigation

STIPULATIONS

Agreements Between Federal Trade Commission and Promoters of Various Products

Following are abstracts of stipulations in which promoters of "patent medicines," medical devices or cosmetics have agreed, following action by the Federal Trade Commission, to discontinue certain misrepresentations in their advertising. These stipulations differ from the "Cease and Desist Orders" of the Commission in that such orders definitely direct the discontinuance of misrepresentations. The abstracts that follow are presented primarily to illustrate the effects of the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act on the promotion of such products. These abstracts are given as examples, since space does not permit a review of all cases reported.

Konceal Hair Dressing.—That this product, formerly called simply "Konceal," is a hair dressing and not a dye, will restore the original color to the hair, dissolve dandruff, conceal the age or give a youthful appearance, were among the misrepresentations which the Germadol Herb Company, New York, agreed to discontinue in a stipulation signed in July 1944.

La-Nu Liquid Shampoo and La-Nu Medicated Ointment.—The Powell Distributing Company and the La Nu Distributing Company, Philadelphia, stipulated in July 1944 to cease representing that the shampoo gives new life or added vitality to the hair, or that the ointment assures a healthy scalp.

Murray's Skin Bleach.—Murray's Superior Products Company, Chicago, stipulated in April 1944 to cease representing, among other things, that this clears normally dark skin, blotches or pimples, and to warn in advertisements and labeling that directions must be followed.

Nature's Aids Center Nostrums.—Nature's Aids Center, Brooklyn, stipulated in July 1944 that it would cease representing: That "Karpatol" will cure any stomach ailment, promote digestion or benefit the blood, liver, kidneys or nerves; that "Regulator Femina" will regulate the menses or help during the menopause; that "Holly (or Holy) Mountain Tea" will relieve or cure any chest or lung disease, or has been tested and recommended by universities or other institutions, or that "Garlo Garlic Pills" will relieve symptoms of high blood pressure.

New Peruna Tonic.—That this will cure colds or build resistance to them, restore energy, increase weight or vigor, or affect such conditions other than as a tonic were among the misrepresentations to be discontinued in the advertising, as stipulated in April 1944 by the Consolidated Drug Trade Products, Chicago

Nix Bleach Cream.—The Nix Cosmetics Company of Memphis, Tenn, stipulated in September 1944 to discontinue any advertisement which did not reveal, among other things, that this product should not be applied too frequently, or used on an area of the skin larger than the face and neck at any one time, or employed where the skin is broken. The stipulation was supplemental to one signed for the company by C. P. Edwards in April 1941, which remains in effect and provides for discontinuance of claims that the cream affects the skin in a new way or in any way different from that of other preparations.

Palmer's Skin Success Whitening Cream.—E. T. Browne Drug Company, Inc., New York, stipulated in September 1944 to discontinue any advertisements which did not make clear that the cream should not be applied too frequently, or to an area of the skin larger than the face and neck at any one time, or to skin that is broken.

Prunol—In July 1944 the Prunol Company, Atlanta, Ga, stipulated that it would cease representing the laxative action of Prunol as due principally to its prune concentrate and mineral oil element, and that future advertisements would conspicuously warn that Prunol contains phenolphthalein and should not be used when symptoms of appendicitis are present; provided, however, that the statement, "Caution: Use only as directed," would be sufficient if the label instructions contain a similar warning.

Super-Kaps.—Sears, Roebuck & Company, Chicago, stipulated in May 1944 to cease representing that this product will beautify the user or correct nervous conditions except those due to a lack of vitamin B_1 in the diet.

Vitawine and Oculine Products.—In June 1944 the Interstate Laboratories, Louisville, Ky., stipulated to cease representing that Vitawine helps constipation or indigestion, increases energy, cures conditions caused by a deficiency of vitamin B_2, or is prescribed by physicians; or that "Oculine Eye Pads," "Oculine Eye Salve," "Oculine Eye Bath" or "Oculine Eye Drops" is useful in treating eye disorders In 1940 the Food and Drug Administration declared that Vitawine labels falsely represented that product contained blood- and body building ingredients, would remedy anemia and prevent pellagra, diarrhea and certain types of neuritis. They reported it to contain over 14 per cent of alcohol, with citrates of sodium, manganese, iron and ammonium and some vitamin B_1.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Fort Wayne, Ind.

12:355-384 (Nov.) 1945

Clinical Significance of Cholesterol. G. L. Muller.—p. 355.
Effect of Bile Salts on Experimental Production of Ulcers in Dog. R. L. Driver and E. B. Carmichael.—p. 378.
*Hyperinsulinism as Factor in Peptic Ulcer. E. M. Abrahamson.—p. 379.

Hyperinsulinism in Peptic Ulcer.—A group of patients with peptic ulcer was subjected to dextrose tolerance tests. The uniformly low late values of blood dextrose fulfilled Abrahamson's prediction that patients with peptic ulcer would have hyperinsulinism. The fact that patients with the clinical diagnosis of peptic ulcer but without x-ray confirmation of peptic ulcer have the same type of dextrose tolerance curves as those in whom the confirmation was present leads to the possibility that the hyperinsulinism, or at least the chronic hypoglycemia, might have some etiologic relationship to ulcer.

American Journal of Medical Sciences, Philadelphia

210:561-700 (Nov.) 1945

*Homologous Serum Hepatitis and Infectious (Epidemic) Hepatitis: Experimental Study of Immunity and Cross Immunity in Volunteers; Preliminary Report. J. R. Neefe, J. Stokes and S. S. Gellis.—p. 561.
*Streptomycin: Absorption, Diffusion, Excretion and Toxicity. Dorothy H. Heilman, F. R. Heilman, H. C. Hinshaw, D. R. Nichols and W. E. Herrell.—p. 576.
*Antagonism of Local Anesthetics Against Sulfonamides. B. S. Walker and M. A. Derow.—p. 585.
Penetration of Penicillin into Joint Fluid Following Intramuscular Administration. V. G. Balboni, I. M. Shapiro and D. M. Kydd.—p. 588.
Typhoid Bacilluria and Urolithiasis. F. Dreyfuss and J. Roth.—p. 591.
Human Infection with Bacterium Necrophorum. I. J. Greenblatt and A. P. Greenblatt.—p. 596.
Unilateral Diaphragmatic Flutter. R. Harris and D. Scherf.—p. 598.
Intestinal Lipodystrophy (Lipophagia Granulomatosis or Whipple's Disease). H. J. Amsterdam and D. M. Grayzel.—p. 605.
Stevens-Johnson Syndrome (Eruptive Fever with Stomatitis and Conjunctivitis). S. Kove.—p. 611.
Experiences with 2,350 Blood Transfusions at Army General Hospital in India. C. K. Kirby.—p. 623.
Simple Technic of Sternal Marrow Biopsy for Spreads and Sections. Elizabeth Mertens.—p. 630.
Effect of Vitamin K Oxide on Anticoagulant Properties of Dicumarol. C. S. Davidson, J. H. Freed and Harriet MacDonald.—p. 634.
Final Note on Reported Case of Erythremia, Gout and Subleukemic Myelosis. G. H. Reifenstein.—p. 638.
Periarteritis Nodosa: Case with Autopsy. R. N. Washburn and T. O. Otto.—p. 640.
Calcific Aortic Valvular Stenosis. L. H. Sophian.—p. 644.
Tentative Test for Pheochromocytoma. G. M. Roth and W. F. Kvale.—p. 653.
Study on Prevention of Mumps Orchitis by Gamma Globulin. S. S. Gellis, A. C. McGuinness and M. Peters.—p. 661.
Pharmacology and Therapeutic Applications of Anti Thyroid Compounds. W. F. Riker and W. C. Wescoe.—p. 665.
Fibrocystic Disease of Pancreas. H. M. Weber and D. G. Pugh.—p. 681.

Homologous Serum Hepatitis and Infectious Hepatitis.—Neefe and his associates induced homologous serum hepatitis experimentally in 6 human volunteers by the parenteral administration of materials known to contain a causative agent of this disease. After recovery the 6 men were inoculated parenterally with a plasma that contained a causative agent of homologous serum hepatitis in order to test for homologous immunity. Nine normal control subjects without previous history of hepatitis also were inoculated parenterally with the same plasma. None of the 6 men in the test group developed incapacitating symptoms or jaundice, whereas 8 of the 9 controls developed hepatitis with jaundice. The 6 men were then inoculated (1 orally, 5 parenterally) with materials known to contain a causative agent of infectious (epidemic) hepatitis in order to test for cross immunity. Twelve normal controls without previous history of hepatitis also were inoculated with these materials, 6 receiving the infectious material orally and 6 receiving it parenterally. Of the 6 men tested for cross immunity, 5 again developed hepatitis, the evidence being conclusive in 4 and very suggestive in the fifth person. The one without evidence of hepatitis previously had had both infectious hepatitis and homologous serum hepatitis. None of the 6 normal controls inoculated parenterally developed hepatitis, whereas 5 of the 6 normal controls inoculated orally contracted typical infectious hepatitis. The groups employed in these studies are too small to warrant final conclusions regarding the relationship of the causative agents of infectious hepatitis and homologous serum hepatitis. Nevertheless the observations provided considerable evidence that the two agents employed were not identical.

Streptomycin.—This is a report by the Heilmans and their associates of studies which were begun at the Mayo Clinic in September 1944 to explore the possible methods of administration and to obtain some information concerning absorption, diffusion, excretion and toxicity of streptomycin. The antibiotic substance has been administered to human beings in amounts which could theoretically be regarded as therapeutically effective. The number of patients concerned in the study is only partially represented by the 30 tabulated. Streptomycin can be administered intravenously, intramuscularly or subcutaneously, also by the intrathecal route, by nebulization or by the oral route. If intermittent methods of parenteral administration are to be used it should be administered at least every three or four hours in a manner similar to that which has been employed for the administration of penicillin. Diffusion of streptomycin into the cerebrospinal fluid does not readily take place unless large doses are administered. Following parenteral administration, streptomycin is readily absorbed into the general circulation and is excreted for the most part in the urine. Streptomycin is diffused through the placenta and is available in the fetal circulation. It also appears to be concentrated and excreted in the bile. Serious and uncontrollable toxic reactions have not been encountered following administration of fairly large amounts of streptomycin in single or repeated injections. Streptomycin has been administered to some patients for a considerable time without evidence of toxic reactions.

Antagonism of Local Anesthetic Against Sulfonamides.—Walker and Derow investigated certain substances with proved or putative local anesthetic action in regard to their activity as sulfonamide antagonists, confirming and in some cases extending the work of other investigators. They found the inhibitory effect of procaine exactly comparable, mol for mol, with that of para-aminobenzoic acid on sulfathiazole. Ortho-aminobenzoic acid and meta-aminobenzoic acid are without inhibitory effect on sulfathiazole. Three derivatives of meta-aminobenzoic acid (3-amino-4-hydroxymethylbenzoate [orthoform, N. N. R.], 3-amino-4-hydroxypropylbenzoate and 3-amino-4-hydroxybenzoic acid) are likewise without inhibitory effect. The work of previous investigators demonstrating no antisulfonamide action of local anesthetics other than the derivatives of para-aminobenzoic acid is confirmed.

American Journal of Ophthalmology, Cincinnati

28:1193-1306 (Nov.) 1945

Chronic Posttraumatic Syndromes Leading to Enucleation. Bertha A. Klien.—p. 1193.
Reconstruction of the Lids. W. L. Hughes.—p. 1203.
*Penetrating Injuries of Eyes: Statistical Survey. W. F. Moncreiff and K. J. Scheribel.—p. 1212.
Relationship Between Visual Acuity and Refractive Error in Myopia. J. S. Crawford, C. Shagass and T. J. Pashby.—p. 1220.
Resection of Inferior Oblique Muscle in Hypotropia. O. H. Wagman.—p. 1226.
Unusual Type of Corneal Opacities. J. W. Henderson and D. R. Gillespie.—p. 1236.
New Permanent Hand Magnet in Light of Present Day Magnet Operation Methods. B. S. Brodsky.—p. 1245.

Penetrating Eye Injuries.—Moncreiff and Scheribel review observations on 183 patients with penetrating eye injuries that were observed at Cook County Hospital in Chicago over a five year period among a total of 691 patients with various types of eye injuries. Of the incised or lacerated wounds, about two thirds of those purely corneal were saved; of the scleral and corneoscleral, less than half. Of the corneal, scleral and corneoscleral ruptures due to contusion, only 40 per cent of the corneal were saved, and less than 20 per cent of the others. Injuries due to a fall or the blow of the bare fist were almost uniformly totally destructive of vision and even of the eye. Broken glass caused 22.7 per cent of all the injuries, and in half of these the eye or the vision was completely lost. There was partial loss of vision in most of the remainder. Nearly three fourths of the 87 eyes on which conservative surgery was done were saved. While the value of the sulfonamides in certain cases cannot be questioned, there were but few cases in which their dramatic effect could be demonstrated Replacement of glass by transparent plastics or unbreakable glass would prevent a large percentage of the serious eye injuries caused by glass. There were 12 patients (over 6 per cent) on whom, through mistaken judgment, conservative surgery was performed instead of prompt enucleation. Consultation with more experienced ophthalmologists might prevent beginners from making mistakes of this kind Sympathetic ophthalmia, as well as other lesser complications, could be prevented if in the absence of any cogent reason to the contrary an eye with a penetrating wound was enucleated within three weeks after injury, *unless the posttraumatic* inflammation had subsided or was well on its way to quiescence.

American Journal of Pathology, Ann Arbor, Mich.

21:1031-1214 (Nov.) 1945

Racial Distribution of Nephritis and Hypertension in Panama C. E. Taylor.—p. 1031.
Experimental Studies in Calcification IV. Effect of Irradiated Ergosterol and of Starvation on Dentin of Rachitic Rat J P. Weinmann and I. Schour.—p 1047.
Id V Effect of Phosphate on Alveolar Bone and Dental Tissues of Rachitic Rat J. P. Weinmann and I Schour—p 1057
Intestinal Lipodystrophy (Whipple's Disease). P J Fitzgerald and T D Kinney—p 1069
Pathologic Study of Renal Damage Produced by Sulfadiazine in Rats: Development, Repair and Residua K M Endicott and A Kornberg —p 1091.
Studies in Vitro on Physiology of Cells Histologic Reactions of Living Tissues to Hypotonic Solutions R Schrek—p. 1101
Pathologic Study of Mice Infected with Virus of Swine Influenza I. N. Dubin—p 1121
Primary Splenic Neoplasms W L Bostick—p 1143
Giant Cystic Arrhenoblastoma of Ovary Containing Entodermal Epithelium and Carcinoid P. H Hartz—p 1167
Tuberculosis of Myocardium Causing Complete Heart Block T B. Menon and C. K Prasada Rao—p 1193

American Journal of Public Health, New York

35:1121-1252 (Nov.) 1945

Tsutsugamushi Disease (Scrub Typhus, Mite Borne Typhus) in New Guinea F G Blake, K F. Maxcy, J F Sadusk Jr, G M Kohls and E J Bell—p 1121
Pulmonary Calcification in Negative Reactors to Tuberculin A Christie and J C Peterson—p 1131
Making Public Health Positions More Attractive J. W Mountin —p 1148
Comprehensive Training Program for Public Health Personnel G St J. Perrott—p 1155
Health Officer and His Personnel W S Shepard—p 1163
Statistical Research in Clinical Tests for Nutritional Deficiencies D G Wiehl—p 1168
Health Education in Hospitals and Outpatient Departments Henriette Strauss—p 1175
Health Education Methods of Red Cross H E Kleinschmidt—p 1181
Utilizing Medical Social Service in Venereal Disease Clinic Margaret Lumpkin—p 1185
*Control of Typhus Fever in Mexican Villages and Rural Population Through Use of DDT C Ortiz Mariotte, F Malo Juvera and G C Payne—p 1191

Control of Typhus in Rural Mexico with DDT.—Ortiz-Mariotte and his associates observed the results of delousing the inhabitants of Mexican villages through application to the clothing of powder containing DDT in 5 per cent concentration and application to the scalp of a lotion of which the basic ingredient is phenyl cellosolve. With 2 exceptions typhus was not present in the communities in which delousing studies were made. In two villages where studies were carried out while epidemics of typhus were occurring, the epidemics subsided rapidly after the application of the DDT powder. The elimination of lice from a village and maintenance of louse free conditions has been found to present more difficulties than temporary delousing to stop the spread of typhus infection. The chief difficulty encountered is that of achieving universal treatment in a community. The effect of phenyl cellosolve lotion on head lice has been found to be only temporary.

American Journal of Surgery, New York

70:137-274 (Nov.) 1945

Pilonidal Disease Management of Cysts, Sinuses and Abscesses in Naval Personnel E Granet and L K. Ferguson—p 139.
*Stricture of Male Urethra T. W. Botsford, J. H Harrison and B E Richel—p 153
Intussusception: Diagnosis and Treatment O F Smith—p 158
Value of Salpingography in Surgical Diagnosis P. Bernstein—p 165
Intestinal Injury and Fecal Fistula in Gynecologic Surgery H C Falk and S. Hochman—p 177.
Primary Treatment of War Amputations E C Weckesser—p 184
Internal Derangements of Knee. Diagnosis and Treatment B J. Mintz. —p 189.
Roentgenologic Exploration of Sinus and Fistulous Tracts B Copleman—p 197.
Refrigeration Anesthesia H O Horner—p 201
Hypoproteinemia in Surgery of Thorax. M C Ratzan and S A. Thompson—p 213
Use of Free Omental Grafts in Thorax: Experimental Study. S A. Thompson and B Pollock—p 227
Constant Traction Dressing W. J. Gardner and V. B Seitz—p 232.

Stricture of Male Urethra.—Botsford and his associates present an analysis of 87 cases of urethral strictures treated in an army general hospital overseas; 1,077 cases of urethritis were treated during the same period In 76 of the 87 cases the strictures were a sequel to gonorrhea; 4 were posttraumatic, 1 was congenital and in 6 the history was noncontributory as to cause. Stricture of the urethra is the most insidious and the most common late complication of gonorrhea. Chronic urethral discharge and difficulty in urination were the main presenting symptoms. The urologic investigation of urethral stricture is outlined, with emphasis on the value of cysto-urethroscopy, urethrography and observation of the patient during the act of micturition. Therapy of urethral stricture involves treatment of the stricture itself and of the accompanying infection of the upper, middle and lower urinary tract. Many strictures are readily amenable to instrumental dilation, as is manifested by easy passage of curved sounds to a caliber of 24 or 26 French without bleeding. Dilations are done at six or seven day intervals Urethral dilation was employed in 56 cases. Twenty-six patients had internal urethrotomy. Criteria for the use of this operation are as follows: 1. The stricture is not impermeable. 2. The stricture is located in the anterior urethra, i. e within the penile or bulbous urethra. 3. The stricture is not amenable to dilation, owing either to a tortuous lumen or to associated bleeding from the adjacent urethra distal to the stricture, or inelasticity of the stricture due to dense scar tissue. 4. The stricture is of small caliber, i e. less than 18 French. The operation is done under spinal or caudal anesthesia and the Maisonneuve type of urethrotome is used. External urethrotomy was done on 4 patients. The indication for this operation was the presence of an impermeable stricture causing urinary retention.

Annals of Allergy, Minneapolis

3:333-400 (Sept-Oct) 1945

Conjunctival Test as Guide to Clinical Immunity in Hay Fever. Mary H Loveless—p. 333
Mold Allergy: II Clinical Analysis G I Blumstein—p 341
Organic State in Problem of Allergy W. F Petersen—p 348
Penicillin Urticaria. M. Zeller—p 360
*Inhalation of Ten Per Cent Carbon Dioxide and Ninety Per Cent Oxygen Plus 1:100 Glycerinized Epinephrine Hydrochloride for Relief of Asthmatic Attacks S D Lockey—p 362
Parenteral Use of Butanefrine in Asthma Comparison with Epinephrine M M Hartman—p 366
Unusual Effect of Aminophylline on Intestinal Tract Case Report M Zeller—p 369.

Carbon Dioxide and Oxygen with Glycerinized Epinephrine Hydrochloride in Asthma.—According to Lockey, 10 per cent carbon dioxide may be used with 90 per cent oxygen in a pressure tank with the usual reducing valve to regulate the flow. A vaporizer containing 1 100 glycerinized epinephrine hydrochloride is attached to a rubber outflow tube, and vaporization of this material is effected through the attached tube and vaporizer. The patient holds the nozzle of the vaporizer in his oral pharynx and breathes quietly. The author has used this method twenty-eight times Bronchodilator action takes place from the inhaled glycerinized 1:100 epinephrine hydrochloride. Dryness of the tracheobronchial tree is prevented by the use of glycerin, which also helps to raise the humidity of the inhaled air and vapor. The resorbing power of the bronchial mucosa is increased. The sputum is liquefied and the patient is able to expectorate more easily. Long, tenacious, thick mucous plugs are often coughed up after the inhalation of 1:100 glycerinized epinephrine by means of the carbon dioxide and oxygen pressure tank. A small electric mechanical aspirator can be used after inhalation to remove tenacious plugs of mucus.

Archives of Neurology and Psychiatry, Chicago

54:231-318 (Oct.) 1945

*Acute War Neurosis: Special Reference to Pavlov's Experimental Observations and Mechanism of Abreaction. W. Sargant and H. J. Shorvon.—p. 231.
Disturbances in Sleep Mechanism: Clinicopathologic Study: II. Lesions at Corticodiencephalic Level. C. Davison and E. L. Demuth.—p. 241.
Multiplicity of Representation versus Punctate Localization in Motor Cortex: An Experimental Investigation. J. P. Murphy and E. Gellhorn.—p. 256.
Disseminated Oligodendroglioma. C. M. Blumenfeld and W. J. Gardner.—p. 274.
Blood Supply of Peripheral Nerves: Practical Considerations. S. Sunderland.—p. 280.
Blood Supply of Sciatic Nerve and Its Popliteal Divisions in Man. S. Sunderland.—p. 283.
Studies on Cerebral Edema: II. Reaction of Brain to Exposure to Air; Physiologic Changes. M. Prados, B. Strowger and W. Feindel.—p. 290.

Acute War Neurosis.—Sargant and Shorvon point out that the phenomena of the "equivalent," "paradoxic" and "ultraparadoxic" phases of the conditioned reflex can be related to acute war neuroses and their treatment. The authors say that from the clinical point of view their most striking observation was the frequency with which they encountered among some patients with acute neurotic states from the battlefields the series of events represented by the sequence: traumatic experience, abnormal psychiatric state exhibiting stereotypy of behavior or thought, artificially induced state of excitement, sudden collapse of the patient into a condition of total cortical inhibition and recovery to a more normal psychiatric state. The last three items of this series are in general parlance covered by the term "abreaction." The authors present 7 case records to illustrate some of the more important observations, especially with respect to experiments on the mechanism of abreaction. One case showed the differing effects of sodium amytal and ether in producing excitation during abreaction and the variable results obtained. Two other cases showed the breaking up of the symptoms of a "stereotypy" when excitation induced under ether is carried on to the stage of ultraboundary inhibition. The relief of focal cortical inhibition, such as loss of voice or stammer, early in ether excitation is demonstrated in 2 other patients. Another case illustrates the combined use of sodium amytal and ether to produce a more controlled and effective type of abreaction in a very excited patient and the symptomatic relief obtained when the ultraparadoxic phase was finally brought about. A seventh case shows that artificially induced excitation under ether will relieve symptoms of hysterical stupor.

Archives of Otolaryngology, Chicago

42:235-308 (Oct.) 1945

Nasogenital Relationship: Review of Literature. R. S. Rosedale.—p. 235.
Development of Cochlear Aqueduct and Round Window Membrane in Human Embryo. J. G. Waltner.—p. 239.
*Early Diagnosis and Arrest of Otosclerosis: Clinical and Histologic Otosclerosis. E. P. Fowler.—p. 253.
Receptor Apparatus of Vestibulovasomotor Reaction. J. R. Lindsay, M. J. Oppenheimer, H. T. Wycis and E. A. Spiegel.—p. 257.
Aural Manifestations of Leukemia. J. G. Druss.—p. 267.
Abscess of Nasal Septum Complicating Acute Ethmoiditis. A. L. Beck.—p. 275.
Paranasal Sinuses. S. Salinger.—p. 285.

Early Diagnosis and Arrest of Otosclerosis.—Fowler says that otologists do not know of a way to diagnose early (subclinical) otosclerosis, a sure way to diagnose early or late ankylosis of the stapedial footplate (clinical otosclerosis), or a cure for the lesion. Otosclerotic foci are found in persons with and without a family history. It is generally held that in the presence of deafness the following signs point to otosclerosis: a pinkish glow from the promontory, an apparent increase of hearing for bone-conducted sound, a positive Gellé test, immovability of the malleus, scantiness of cerumen, hairs and sweat in the external auditory canal, patency of the eustachian tubes, infrequency of colds in the head, a family history of ostosclerosis and no personal prior history of aural disorders. But no one of these is pathognomonic, and even two or three of them are only suggestive of impending otosclerosis, in the absence of deafness. All of them may be absent in the presence of otosclerosis, and all of them may be present in the absence of otosclerosis. Necropsies have shown that 7.55 per cent of white persons harbored otosclerosis, but only about 1 per cent had ankylosis. The author stresses the incidence of inactivity and activity at different periods of life. Ankylosis should be stressed because ankylosis is the cause of the deafness, and it has usually been found accompanied by activity in the lesion. The only impressive sign of beginning ankylosis is a slight lowering of hearing for the lower frequencies. The typical audiometric curve of the patient with uncomplicated active otosclerotic ankylosis shows a loss of hearing which progresses inversely with frequency. Evidence that the fistula operation arrests the lesion is not impressive. It does in some instances and for varying periods improve the hearing considerably, but this can occur irrespective of any change in the activity of the otosclerosis. Every child should be carefully examined otologically when it enters school. A history of progressive deafness in the family should lead the school observer to examine the child more frequently. Interest is centered on endocrine factors and on certain vitamins and minerals. Irrespective of otosclerosis, these are of importance at this time of life.

Archives of Pathology, Chicago

40:209-288 (Oct.) 1945

Effect of Excessive Ingestion of Sodium Chloride on Chick, with Particular Reference to Renal Changes. C. A. Krakower and Marianne Goettsch.—p. 209.
*Structural Changes in Early Filariasis. H. Rifkin and K. J. Thompson.—p. 220.
Changes in Musculature of Gastrointestinal Tract and in Myocardium in Progressive Muscular Dystrophy. Margaret Bevans.—p. 225.
*Structure of Liver in Pellagra. J. Gillman and T. Gillman.—p. 239.
Aging Processes in Endocrine Glands of Guinea Pig: I. Influence of Age, Sex and Pregnancy on Mitotic Activity and Histologic Structure of Thyroid, Parathyroid and Adrenal Glands. H. T. Blumenthal.—p. 264.
Regeneration of Epidermis of Mice Under Influence of 20-Methylcolanthrene. M. Silberberg and Ruth Silberberg.—p. 270.
Microfilarial Granuloma of Spleen: Observations in 12 Additional Cases. R. G. Dhayagude.—p. 275.

Structural Changes in Early Filariasis.—Rifkin and Thompson studied a series of patients from units which had been stationed for thirteen to thirty months in various islands of the South Pacific where filariasis is known to be endemic. They have reviewed a series of lymph nodes and lymphatic vessels from patients suspected of having filariasis on whom biopsies were made at other army medical installations. Their report is based on a detailed study of 30 cases. In the entire series the peripheral blood presented no evidence of microfilarias. Thick and thin smears and Knott concentration methods were utilized. It appears that the adult filaria has the ability to produce a distinct reticuloendothelial response. This response varies with the viability of the parasite. In cases in which a distinct endothelial reaction is induced one must rule out tuberculosis, syphilis and the other chronic granulomas. There appear to be three stages in the genesis of filariasis: the acute stage, manifested by a typical allergic reaction, which may be local or systemic; the subacute or early chronic stage, characterized by the development of a proliferative granulation tissue and occurring in lymphatic tissues harboring the parasites, and late chronic stage of the disease, typified by a nonspecific fibrous tissue overgrowth. Distinct delineation is not possible, one stage merging imperceptibly into the other.

Structure of Liver in Pellagra.—The Gillmans discuss the value of hepatic puncture in estimating the structural modifications in the human liver in pellagra. By an improved liver biopsy technic they removed fragments of liver from 120 patients with pellagra on admission to the hospital. On the basis of the amount, the character and the distribution of fat and pigment and the presence or the absence of cirrhosis, these livers were graded into four main types. In type 1 the characteristic feature is the presence of varying amounts of fat only. This type may be subdivided into six subtypes according to the quantity, the nature and the distribution of the fat. Type 2 contains cytosiderin and cytolipochrome in the hepatic and Kupffer cells only, distributed in the form of discrete granules. Type 3 is very similar to type 2 except that the iron-containing pigment not only is present in the liver cells and the Kupffer cells but is aggregated in large masses in cells lying either in the hepatic lobule or in the portal tracts. Pigmentary cirrhosis of varying intensity is the main feature of type 4. Livers of types 2, 3 and 4 could exhibit the same degrees of fatty change as described in livers of type 1. The type 1 liver is predominantly a feature of pellagrous infants and children, while the pigmented liver, with or without fat, is found in adolescents and adults. Iron pigment arises within the liver cells as the result of a profound disturbance of intracellular metabolism induced by dietary imbalance. The Gillmans stress that the therapy and the assessment of its effectiveness should be based not only on the clinical picture but on the structural alterations in the liver. In pellagrins the fatty change, the formation of intracellular pigment, with or without cirrhosis, and carcinoma represent different patterns of reactivity of the liver cells to acute and chronic malnutrition.

Archives of Physical Medicine, Chicago

26:677-730 (Nov.) 1945

Physical Therapy in Rheumatoid Arthritis. B. I. Comroe.—p. 677.
Spa Treatment of Rheumatic Diseases in the United States: III. Representative Spas. R. Kovacs.—p. 683.
Palindromic Rheumatism. W. D. Paul and T. L. Carr.—p. 687.
*Studies on Neuromuscular Dysfunction: IV. Neostigmine Therapy of Acute and Chronic Cervical Intramuscular Fibrositis. H. Kabat and C. W. Jones.—p. 691.
Suggestions to Improve Early Treatment of Hand Injuries. S. Bunnell.—p. 693.
Readjustment to Peace—The People's Responsibility. C. C. Burlingame.—p. 697.
Wilhelm Konrad Roentgen: An Anniversary. H. A. Carter and J. S. Coulter.—p. 701.

Neostigmine in Cervical Intramuscular Fibrositis.—Kabat and Jones gave neostigmine to 9 patients with acute cervical intramuscular fibrositis (stiff neck). Rapid relief was effected in all cases. Sometimes one injection was all that was necessary to bring about complete relief within twenty-four hours. One patient with cervical intramuscular fibrositis of six years' duration showed great improvement from neostigmine.

Archives of Surgery, Chicago

51:69-124 (Sept.) 1945

*Gelatin Sponge: Surgical Investigation of New Matrix Used in Conjunction with Thrombin in Hemostasis. R. U. Light and Hazel R. Prentice.—p. 69.
Skin Bacteria: Their Role in Contamination and Infection of Wounds. D. L. Lovell.—p. 78.
*Penicillin in Treatment of Chronic Osteomyelitis: Preliminary Report. J. Buchman and J. E. Blair.—p. 81.
Posttraumatic Renal Injury: Summary of Experimental Observations. A. C. Corcoran and I. H. Page.—p. 93.
Chronic Ulcerative Colitis with Generalized Peritonitis and Recovery: Treatment with Penicillin and Sulfadiazine. W. L. Palmer and W. E. Ricketts.—p. 102.
Surgical Therapy of Patent Ductus Arteriosus: Report of 5 Cases. J. C. Trent.—p. 106.
Ulcerating Lesions of Gastroenteric Stoma. N. E. Tosseland and J. R. McDonald.—p. 113.
Leiomyosarcoma of Uterus with Metastasis to Femur: Report of Case and Review of Literature. W. S. Brooke and J. R. Thomason.—p. 120.

Gelatin Sponge and Thrombin in Hemostasis.—Light and Prentice, who describe surgical investigations on gelatin sponge in animals and in man, conclude that gelatin sponge is an efficient matrix for use in conjunction with thrombin in the "patch technic" of surgical hemostasis. Microscopic studies show that gelatin sponge when implanted on bleeding dura, on uninjured brain or on injured brain provokes a predictable, mild cellular reaction and is absorbed in twenty to forty-five days without residual reaction. The repair of venous sinuses with gelatin sponge leaves the lumen of the vein patent and without evidence of thrombus formation. The use of bovine thrombin in the amounts required for surgical hemostasis in human beings appears to be free from the danger of antigenicity. The "patch technic" of hemostasis is no longer dependent on human blood for its materials.

Penicillin in Chronic Osteomyelitis.—Buchman and Blair made clinical and bacteriologic studies on the results of treatment of chronic osteomyelitis with penicillin with and without surgical intervention on 47 patients presenting a total of 68 lesions. The treatment of chronic osteomyelitis with intramuscular injections and local applications of penicillin without surgical intervention is totally ineffective. If thorough saucerization of the chronic osteomyelitic focus is combined with preoperative and postoperative administration of penicillin and the resulting wound is left to granulate, the penicillin has little beneficial effect. The treatment of chronic osteomyelitis with preoperative and postoperative intramuscular administration of penicillin, thorough saucerization of the focus and primary closure of the resultant wound has given extraordinarily good results in 23 out of 27 cases.

Bulletin of Johns Hopkins Hospital, Baltimore

77:143-290 (Sept.) 1945

*Study of Food Borne Epidemic of Tonsillitis and Pharyngitis Due to Beta-Hemolytic Streptococcus, Type 5. Commission on Acute Respiratory Diseases.—p. 143.
Suppression as Adjunct to Therapy of Malaria in Nonmalarial Areas. R. A. Lewis and F. W. Kibbe.—p. 211.
Study of Spasticity and Paralysis. P. F. Wagley.—p. 218.
Two Cases of Periarteritis Nodosa Occurring in First Month of Life. H. A. Wilmer.—p. 275.

Food Borne Epidemic of Tonsillitis and Pharyngitis.—An epidemic of a food borne streptococcic infection reported by the Commission on Acute Respiratory Diseases occurred at Fort Bragg in November 1943. The epidemic was confined to members of two companies of an airborne infantry regiment. The causative agent was a strain of beta-hemolytic streptococcus of group A, type 5. One hundred patients with type 5 streptococcic infection of the throat were hospitalized from a group consisting of 32 officers and 228 enlisted men. Various types of investigations were carried out. Epidemiologic evidence incriminated creamed eggs as the probable vehicle of infection. The outbreak was explosive in onset, with a median incubation period of thirty-eight hours and a primary attack rate of 42 per cent. Almost all subjects originally infected became clinically ill. The secondary attack rate was 30 per cent, of which half were cases and half carriers. Alternate patients were treated with sulfadiazine. Only a slight decrease in the height and duration of fever resulted from sulfadiazine treatment. While chemotherapy effected striking reductions in total and differential leukocyte counts and in the daily prevalence of beta-hemolytic streptococci in the throat, the changes were transitory and persisted only during treatment. Benefit was not derived from chemotherapy. A significant rise in titer of antistreptolysin or antifibrinolysin was found during convalescence in a high percentage of cases. It is assumed that an antibody response probably occurred in more than 90 per cent of all cases of type 5 streptococcic infection. Similar antibody responses appeared in nearly half of healthy carriers, indicating that a proportion of "healthy" carriers were subclinical cases. Transient carriers did not exhibit an antibody response, while those who carried the organisms for more than ten days did. Subjects with tonsils frequently had confluent exudate, harbored the organisms in large numbers in early cultures and tended to remain chronic carriers. Subjects whose tonsils had been removed had less exudate and fewer streptococci, and they rid themselves of the organisms sooner. Tonsillectomized patients tended to have lower initial levels of antistreptolysin and higher convalescent titers than patients with tonsils. In instances in which sulfadiazine suppressed the growth of streptococci to a considerable degree during the first ten days of illness, an inhibition of antistreptolysin response was demonstrated. Correlation was not found between the severity of illness and either the initial titer of antistreptolysin or the maximum titer during convalescence. The termination or persistence of the convalescent carrier state appeared to be related to the height of the antistreptolysin response.

Bulletin New York Academy of Medicine, New York

21:505-558 (Oct.) 1945

Decompression Sickness and Bubble Formation in Blood and Tissues. E. N. Harvey.—p. 505.
Therapy of Liver Diseases. C. L. Hoagland.—p. 537.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

5:613-734 (Dec.) 1945

- *Evaluation of the Untoward Reactions Attributable to Atabrine (Quinacrine). Surgeon General's Office.—p. 653.
- *Treatment of Infectious Hepatitis by Diet and Rest. J. D. Hughes.—p. 662.
- Anesthesia for Abdominal Surgery Following Trauma. I. Greenfield.—p. 666.
- Successful Neurotic Soldier. W. Needles.—p. 673.
- Work Furloughs for Patients with Peripheral Nerve Injuries. F. H. Lewey and G. K. Bowles.—p. 683.
- Lichen Planus-Eczematoid Dermatitis Complex of Southwest Pacific. E. Epstein.—p. 687.
- Reactions to Penicillin. F. E. Cormia, L. Y. Jacobsen and E. L. Smith.—p. 694.
- Mobile Medical and Dental Dispensaries. S. A. Effron and R. E. Hesselschwerdt.—p. 703.
- Mental Hygiene Unit. A. A. Rosner.—p. 706.
- Vitamin C Status of Troops in Tropics. W. R. C. Golden and M. S. Schechter.—p. 710.
- Army Institute of Pathology. J. E. Ash.—p. 718.

Untoward Reactions Attributable to Quinacrine.—The report by the Medical Consultants Division of the Surgeon General's Office, based on clinical studies and observations on large groups of patients, emphasizes the following points: 1. The military value of quinacrine in suppressing vivax malaria and curing falciparum malaria far outweighs untoward effects which have been attributed to the use of the drug. 2. Suppressive doses of quinacrine greater than 0.7 Gm. per week should not be employed routinely. This amount has been shown to provide adequate protection against clinical attacks of malaria, provided "quinacrine discipline" is strictly enforced. In clinical treatment of malarial attacks with quinacrine, routine dosage should not exceed 2.8 Gm. in seven days. 3. Quinacrine suppressive medication should be discontinued promptly and quinacrine should not be given for clinical treatment when patients develop atypical lichen planus, unexplained chronic eczematoid dermatoses, unexplained toxic erythematous eruptions, exfoliative dermatitis, severe leukopenia, agranulocytosis and aplastic anemia, acute hepatitis (not including disturbances believed to be due to malaria) or toxic psychoses which can be reasonably attributed to quinacrine after careful clinical study. 4. Drugs other than quinacrine, such as the sulfonamides and arsenicals, may be harmful to patients with the conditions mentioned. 5. Caution should be exercised in attributing disease conditions to quinacrine until complete studies have been made to establish such relationship. Because of the widespread use of quinacrine, its administration inevitably coincides with many diseases with which the drug is not related. Even if a connection is established between quinacrine and a given untoward effect, its significance relative to the military value of quinacrine requires evaluation. Since the use of quinacrine became widespread, clinical attacks of falciparum malaria have been almost eliminated and deaths from malaria have been extremely rare. In general, quinacrine is superior to quinine both for suppression and for clinical treatment.

Diet and Rest in Infectious Hepatitis.—Twenty-six patients with acute primary infectious hepatitis (group A) were treated by strict bed rest and a diet consisting of protein 180 to 200 Gm., carbohydrate 500 to 600 Gm. and fat 50 Gm. per day. Nineteen patients (Group B) were used as controls and were allowed full activity and free choice of food at the ambulatory patients' mess. On the basis of this study Hughes concluded that it is unwise to treat acute infectious hepatitis with jaundice by permitting the patients to be ambulatory during the active phase of the disease and to eat whatever foods they choose. A regimen of bed rest and a high protein, high carbohydrate and low fat diet, as contrasted to a regimen of full activity and regular diet, results in a much greater percentage of patients returned to full duty and a substantial decrease in the period of hospitalization. These conclusions are supported by purely objective data such as the speed of the return of liver size to normal, body weight curves and the speed of return to normal of the icterus index and the blood phosphatase and cephalin cholesterol tests. Further studies will have to determine which of the two factors bed rest or diet is the more important in the treatment of infectious hepatitis.

Canadian Journal of Public Health, Toronto

36:413-454 (Nov.) 1945

- Child Health Program. J. M. Hershey.—p. 413.
- Epidemic of Septic Sore Throat at Salmon Arm. B. C. R. Bowering, J. M. Hershey, J. A. Taylor, Eileen Jones and E. B. Winstanley.—p. 419.
- Mortality Reductions in Ontario, 1900-1942: IV. Tuberculosis. N. E. McKinnon.—p. 423.
- Incidence of Pinworm Infection in a Military Camp in Ontario. E. Kuitunen-Ekbaum.—p. 430.

Canadian Medical Association Journal, Montreal

53:421-526 (Nov.) 1945

- Rehabilitation of War Personnel Subjected to Aural Trauma. D. S. McEachern.—p. 421.
- *Subacute Bacterial Endocarditis with Cerebral Embolism Successfully Treated with Penicillin and Heparin. E. T. Green.—p. 425.
- Mucosal Respiratory Syndrome. J. H. Stanyon and W. P. Warner.—p. 427.
- Place of Protein in Diet of Pregnant Patient. M. Blair, M. T. Porter and L. A. Atkinson.—p. 434.
- Management of Nerve Injuries in Late Stages. F. Turnbull.—p. 438.
- Malignant Thymoma. F. N. Wilson and J. E. Pritchard.—p. 444.
- Two Cases of Anterior Mediastinal Abscess. M. Aronovitch and A. M. Vineberg.—p. 455.
- Tick Borne Diseases of Man in Alberta. M. R. Bow and J. H. Brown.—p. 459.
- Hemangioma Pontis. R. Altschul.—p. 465.
- Significance of Recurrent Osgood-Schlatter Strain. O. T. Steen.—p. 468.
- *Penicillin in Hemolytic Streptococcal Infection of Throat. J. D. Keith, E. T. Bynoe, J. Maclennan, J. Williamson, J. Carpenter and C. Armstrong.—p. 471.
- Survey of Noneffective Medical Reboards, Canadian Army Overseas, July to December 1944. D. G. H. MacDonald and I. L. Wellwood.—p. 478.
- Treatment of Asthma. G. D. Stanley.—p. 482.

Penicillin and Heparin in Subacute Bacterial Endocarditis with Cerebral Embolism.—Green reports that, following the detection of Streptococcus viridans in three blood cultures, taken on successive days, of a woman aged 25, who first came under observation because of cerebral embolism, penicillin and heparin were given over ten days until a total of 1,200,000 units of penicillin and 200 cc. of heparin had been administered. One week after completion of the course of treatment the patient was sitting out of bed and six days later was allowed to go home. The treatment seems to have had a favorable influence in recovery from the effects of the embolism.

Penicillin in Hemolytic Streptococcic Throat Infections.—Keith and his co-workers studied cases of acute pharyngitis in the Canadian navy presenting hemolytic streptococci (group A) in throat cultures. The immune response in the blood stream was studied by doing antistreptolysin titers at the onset of the infection and after one month. Since a definite rise in titer is accepted as evidence of a streptococcic infection, the authors had a group of cases in which the diagnosis was certain. Penicillin was administered by the intramuscular route, 20,000 units every four hours, six times daily, until 360,000 units had been injected. This therapy was given to every other patient. The alternate patients were controls and were treated symptomatically. The total number of patients studied was 135; 59 of these were treated with penicillin by intramuscular injection, while 56 were treated symptomatically; 20 were treated with penicillin orally. The average length of time the temperature remained elevated after admission in the penicillin treated group was 3.1 days. In the symptomatically treated control group it was 4.9 days. Of the patients with proved streptococcic infection treated with penicillin 30 per cent continued to harbor hemolytic streptococci at one week and 13 per cent at one month. In the symptomatically treated controls 100 per cent continued to harbor these organisms at one week and 60 per cent at one month. It required six days' therapy to treat adequately the sore throats due to hemolytic streptococci. It also required six days' therapy to rid the throat of the offending organisms and prevent their return in the majority of cases. Penicillin administered orally in adequate quantities by the technic of Little and Lumb was effective therapeutically and also in ridding the throat of hemolytic streptococci.

Cincinnati Journal of Medicine

26:417-496 (Nov.) 1945

- Studies on Natural History of Poliomyelitis. A. B. Sabin.—p. 417.
- Present Status of Oral Administration of Penicillin: Review. R. R. Suskind.—p. 446.

Delaware State Medical Journal, Wilmington

17:187-200 (Oct.) 1945

Our Society. I. L. Chipman.—p. 187.
Wartime Health and Education and Its Significance in Peacetime Medical Care. J. M. Tunnell.—p. 189.
Chronic Arteriovenous Fistula of Traumatic Origin. R. A. Mino.—p. 194.

Florida Medical Association Journal, Jacksonville

32:219-276 (Nov.) 1945

Role of Pediatrician and General Practitioner in Diagnosis and Treatment of Behavior Problems in Children. H. C. Miller.—p. 245.
Infectious Mononucleosis: Typhoid Type. M. S. Saslaw.—p. 254.

32:277-336 (Dec.) 1945

Studies on Readministration of Sulfathiazole. R. H. Nickau.—p. 303.
History of Medicine in Duval County: Part VII. W. Merritt.—p. 305.

Gastroenterology, Baltimore

5:85-154 (Aug.) 1945

*Symptoms Following Partial Gastric Resection. J. M. Berkman and F. J. Heck.—p. 85.
Massive Hematemesis of Undetermined Origin. I. R. Jankelson.—p. 96.
Diverticulitis of Jejunum with Perforation. M. W. Shutkin.—p. 102.
Carcinoma of Esophagus: Survey of 332 Cases. E. Boros.—p. 106.
Significance of Chronic Gastritis in Army General Hospital. J. G. Cutler and J. E. Walther.—p. 112.
Experimental Cholecystitis: II. Histologic Study. M. E. Rehfuss and G. M. Nelson.—p. 117.
*Effect of Vagotomy and Atropine on Caffeine Stimulation of Gastric Secretion. J. A. Roth and A. C. Ivy.—p. 129.
Congenital Absence of Cardia: Case. W. C. Alvarez.—p. 135.

Symptoms Following Partial Gastric Resection.—The most commonly accepted explanation of the postprandial symptoms known as the dumping syndrome following partial gastric resection is jejunal distention. The inanition which may occur as a result of the postprandial symptoms may be overcome by placing the patient on a high protein diet, starting with a small amount of bulk and gradually increasing the bulk to that amount represented by 2,500 calories. By this method, without increasing the amount of bulk further, a diet with a caloric value of 3,200 calories may be reached which will insure a progressive increase in weight without increasing the severity of the postprandial symptoms. A group of patients who have experienced nausea to a sufficient degree to prevent the eating of several nonconsecutive meals each week has been observed. The nausea was not associated with postprandial symptoms and did not follow the taking of food. A number of patients have been seen who, although they had been symptom free after partial gastric resection, found it impossible to eat enough in the usual three daily meals to regain weight lost after operation. By the dietary method described, a progressive gain in weight was brought about without postprandial discomfort. In some cases hypochromic microcytic anemia developed after partial gastric resection and failed to respond to the usual treatment for hypochromic anemia. The value for hemoglobin improved after a high protein diet with a caloric value of 3,200 calories had produced an increase in weight.

Caffeine Stimulation of Gastric Secretion.—Roth and Ivy demonstrated that caffeine is a potent stimulus of the secretion of acid and pepsin. A synergistic relation exists between caffeine and histamine with regard to the secretion of hydrochloric acid. The authors attempted to determine whether caffeine stimulated the secretion of hydrochloric acid by acting on the central or on the peripheral vagal secretory mechanisms. Tests were made on several groups of cats and on 7 human subjects. The stomach of a cat responded to caffeine by an increased output of acid after bilateral vagotomy or 1 mg. of atropine sulfate subcutaneously. The stomach of man responded to caffeine by an increased output of acid after the administration of 1 mg. of atropine sulfate subcutaneously. The evidence indicates that caffeine stimulates gastric secretion by acting peripherally on some mechanism in the gastric mucosa, probably directly on the parietal cells, since the evidence is not entirely consonant with the view that caffeine causes the release of histamine. The possibility that caffeine may also stimulate gastric secretion in part by acting centrally still exists. The failure of the gastric secretory mechanism of the dog to respond to caffeine is unexplained.

Iowa State Medical Society Journal, Des Moines

35:329-460 (Nov.) 1945

Papillomas of Verumontanum. E. M. Honke.—p. 427.
Reactions (Pale-Outs) in Blood Donors. C. M. Zukerman.—p. 428.
Speech Rehabilitation After Laryngectomy. C. R. Strother.—p. 433.

35:461-508 (Dec.) 1945

Dengue: Report of Epidemic. W. M. Block.—p. 461.
Role of Sanatorium in Postwar Period. W. M. Spear.—p. 467.
Surgical Treatment of Carcinoma of Rectum. E. L. Besser and J. W. Dulin.—p. 468.

Journal of Infectious Diseases, Chicago

77:85-175 (Sept.-Oct.) 1945

Irradiation Effects on Genetic Resistance of Mice to Mouse Typhoid. J. W. Gowen and M. R. Zelle.—p. 85.
Common Antigens Among Filarial and Other Nematode Parasites of Man. J. Oliver-González and F. Hernández Morales.—p. 92.
Problem of "Dangerous Carrier" of Hemolytic Streptococci: II. Spread of Infection by Individuals with Strongly Positive Nose Cultures Who Expelled Large Numbers of Hemolytic Streptococci. M. Hamburger Jr., Margaret J. Green and Virginia G. Hamburger.—p. 96.
Inflammatory Reactions in Skin of Normal and Immune Canaries and Monkeys After Local Injection of Malarial Blood. W. H. Taliaferro and W. Bloom.—p. 139.
Determination of Antitrypanosome Effect of Antimonials in Vitro. G. Chen and E. M. K. Geiling.—p. 139.
Toxoplasmosis in Monkey: Acute Fatal Infection Experimentally Produced in Young Macaca Mulatta. D. Cowen and A. Wolf.—p. 144.
Increased Parasitemia in Chicken Malaria (Plasmodium Gallinaceum and Plasmodium Lophurae) Following X-Irradiation. W. H. Taliaferro, Lucy G. Taliaferro and E. L. Simons.—p. 158.

Journal of Lab. and Clinical Medicine, St. Louis

30:899-974 (Nov.) 1945

Antitubercular Activity of Aspergillic Acid and Its Probable Mode of Action. A. Goth.—p. 899.
*Serologic Reactions in Primary Atypical Pneumonia. A. L. Florman and Alice B. Weiss.—p. 902.
Phagocytic Activity of Neutrophils in Anemias. L. J. Berry, Jane Davis and T. D. Spies.—p. 910.
*Fatal Secondary, Toxic Thrombocytopenic Purpura Due to Sodium Salicylate: Report of a Case. A. E. Rappoport, C. E. Nixon and W. A. Barker.—p. 916.
Morphology of Erythrogenic Reticulum of Bone Marrow in Addison-Biermer's Disease in Relapse and Early Remission as Seen by Imprint Method, with Reference to Myelogenic and Megakaryocytogenic Reticulum. E. M. Schleicher.—p. 928.
Choleretic Action of Allyl Ester of Cinchophen (Atoquinol). E. M. Boyd, K. L. Clark and R. C. Elliott.—p. 943.
Anticonvulsant Effects of Steroids. E. Spiegel and H. Wycis.—p. 947.
Certain Aspects of Bronchial Reflexes Obtained by Stimulation of Nasopharynx. J. E. Rall, N. C. Gilbert and Ruth Trump.—p. 953.

Serologic Reactions in Primary Atypical Pneumonia.—Florman and Weiss made serologic tests on serial specimens of serum from 68 patients with a clinical diagnosis of primary atypical or viroid pneumonia. The tests included the cold agglutinin, indifferent streptococcus agglutinin, elementary body type virus complement fixation and the Kahn flocculation and Kolmer complement fixation tests for syphilis. Almost two thirds of the patients were found to have positive cold agglutinin reactions, nearly half developed positive streptococcus agglutinin reactions, more than a fourth had positive elementary body type virus complement fixation reactions and a sixth had transitory positive Kahn and Kolmer tests. These results were significantly different from those found in 32 control serums. It was demonstrated that a positive streptococcus agglutinin test is more likely to occur in a patient with a positive cold agglutinin reaction, that the majority of persons with positive elementary body type of complement fixation tests do not have positive cold agglutinin tests and that there is no apparent relationship between the occurrence of any of these reactions and transitory positive Kahn and Kolmer tests for syphilis. In a group of 73 consecutively received serums from patients with primary atypical pneumonia only 2 significantly high heterophil titers and 1 Weil-Felix titer were found. The frequency with which the cold agglutinin antibodies and the other previously mentioned antibodies are found to develop in patients convalescing from primary atypical pneumonia suggests an immunologic association with the etiologic agent (or agents) of the disease. The many combinations of response which are measured by the tests reported here may be the reflection of individual variation or of several different agents producing the same syndrome. Until the etiologic agent for the majority of instances of primary atypical or viroid pneumonia is identified, these tests serve the practical purpose of more clearly defining the disease.

Fatal Thrombocytopenic Purpura Due to Sodium Salicylate.—Rappoport and his associates, in reporting an instance of secondary thrombocytopenic purpura caused by sensitization to sodium salicylate fatal to a man aged 35, base the causal relationship on the proved history of sensitization to sodium salicylate, the absence of exposure to any other chemical or infectious agent, the morphologic characteristics of the megakaryocytes, the metaplastic appearance of these elements in the spleen and the failure of splenectomy to improve a thrombocytopenic purpura.

Journal-Lancet, Minneapolis

65:351-380 (Oct.) 1945

Thyrotoxicosis. H. O. Drew.—p. 351.
Medical Leadership in Public Health. C. C. Applewhite.—p. 355.
Problem of Deformity in Poliomyelitis. J. A. Key.—p. 358.

65:381-414 (Nov.) 1945

Consideration of Two Cardiac Diseases Amenable to Surgical Treatment. A. R. Barnes.—p 382.
Factors in Prognosis in Coronary Disease. H. W. Gregg.—p. 385.
Management of Common Cardiac Irregularities. R. O. Gochl.—p. 391.
Objective Tests of Cardiac Function. G. N. Aagaard.—p. 394.
Rupture of Heart: Review and Case Report. J. L. Diamond.—p. 396.
Digitalis: Its Legitimate Field of Usefulness. P. P. Ewald.—p. 398.
Treatment of Rheumatic Fever. M. J. Shapiro.—p. 400.

Journal of the Mount Sinai Hospital, New York

12:851-906 (Sept.-Oct.) 1945

Aspects of Transmission of Nervous Impulse: II. Theoretical and Clinical Implications. O. Loewi.—p. 851.
Studies on Extractable Factors in Spleen and Other Organic Sources Which Influence Blood Platelet Count. S. E. Moolten.—p. 866.
Correlations Between Electroencephalogram and Histologic Structure of Gliogenous and Metastatic Brain Tumors. L. Greenstein and H. Strauss.—p. 874.
Reminiscences 1900-1937. R. T. Frank.—p. 878.
Life's Later Years: Studies in the Medical History of Old Age. F. D. Zeman.—p. 890.

Journal of Urology, Baltimore

54:357-408 (Oct.) 1945

New Technic of Simultaneous Bilateral Ureterointestinal Anastomosis: Report of Experimental Study. A. Davalos.—p. 357.
*Lumbar Ureterolithotomy: Foley Operation. C. L. Prince.—p. 368.
Congenital Valve in Upper Ureter. J. T. MacLean.—p. 374.
Unilateral Triplication of Ureter and Renal Pelvis. J. T. MacLean and E. W Harding.—p. 381.
Use of Thrombin (Topical) in Control of Bleeding Associated with Prostatic Surgery. H. L. Boyd.—p. 385.
Incarceration of Penis. H. A. Hoffman and F. H. Colby.—p. 391.
Use of Antidiuretic Property of Pitressin in Excretory Pyelography. R. Lich Jr. and P. J. Lewis.—p. 400.
Sulfadiazine Anuria with Urethral Stricture. I. Gersh and M. A. Magid. —p. 403.
Application of New Plastic Cast Material in Urology. C. D. Goodhope. —p. 406.

Lumbar Ureterolithotomy.—Prince believes that Foley's lumbar ureterolithotomy should be performed immediately in all cases of calculi in the upper third of the ureter, unless they are of such small size that they give great promise of spontaneous passage within a brief period. This operation is carried out through an incision 7 to 8 cm. in length without the cutting of a muscle; the ureter is never freed from its bed, and there is a minimum of retroperitoneal dissection. The operation is of admirable anatomic design, quick, bloodless and effective.

Kentucky Medical Journal, Bowling Green

43:291-320 (Nov.) 1945

The Country Doctor—Past and Present. J. W. Stovall.—p. 292.
Future of Rural Medicine in Kentucky. D. G. Miller Jr.—p. 295.
Pain, a Discussion of Recent Progress. A. Wikler.—p. 298.
The Diagnosis of Cephalopelvic Disproportion. W. T. McConnell. —p. 303.
Bleeding in the Last Trimester of Pregnancy. R. F. Vogt.—p. 307.
Obstetric Anesthesia. S. S. Clark.—p. 308.

43:321-344 (Dec.) 1945

Backache. R. T. Hudson.—p. 324.
Penicillin in Treatment of Syphilis. C. G. Baker.—p. 327.
Abuse of Bed Rest in Surgery. J. A. Stoeckinger.—p. 333.
Presacral Nerve Resection. D. L. Peterson.—p. 337.

Michigan State Medical Society Journal, Lansing

44:1053-1080 (Oct.) 1945

A Doctor's Life. A. S. Brunk.—p. 1053.
Problems Arising from Michigan's New Compensation Law. T. P. Ryan. —p. 1056.
Selective Placement of Workers: A Medical Man's Viewpoint. F. E. Poole.—p. 1060.
Psychosomatic Medicine in Industry. H. G. Ross.—p. 1067.
Role of General Practitioner in Tuberculosis Control. H. E. Hilleboe and E. J. Gillespie.—p. 1071.

Military Surgeon, Washington, D. C.

97:355-440 (Nov.) 1945

Diagnosis and Treatment of Trachoma: Report of 19 Cases in Military Personnel. P. Thygeson.—p. 355.
Abdominal Pain and Its Interpretation. W. C. Brown.—p. 361.
Cryptorchism: Discussion and Report of 113 Cases. R. L. Fruin.—p. 365.
Muscle Hernia, with Report of 6 Additional Cases in Arm and Leg. H. E. Simon.—p. 369.
Malignant Synovioma: Case Report. J. J. Bedrick and S. A. Zawadzki. —p. 374.
Atypical Pneumonia at an Air Base in India During Winter of 1944-1945. J. H. Hafkenschiel.—p. 377.
Effectiveness of A Nitrofuran in Treatment of Infected Wounds: I. Preliminary Report. M. L. Snyder, C. L. Kiehn and J. W. Christopherson.—p. 380.
Background of Military Psychoneuroses. L. S. Lipschutz.—p. 384.
Treatment in an Army Neuropsychiatric Hospital. J. L. Morrow. —p. 388.
Bilateral Crush Injury to Thorax with Death: Case. W. A. Barrett. —p. 394.
Details of Design Needed for Improved Sanitation in Mess Halls. G. S. Bell.—p. 396.
Equipment for Disseminating DDT, Residual Type, Sprays and Dusts. B. Heinemann.—p. 399.
Discussion of Certain Aspects of Normal Liver and of Laënnec's Cirrhosis of Liver, Illustrated by 2 Cases. T. M. Downs Jr.—p. 405.

Minnesota Medicine, St. Paul

28:785-872 (Oct.) 1945

Abuse of Prolonged Rest in Aged. J. F. Norman.—p. 803.
Thrombosis and Embolism of Abdominal Aorta. J. L. Diamond.—p. 810.
Congenital Atresia of Biliary Tract. R. E. Nutting and A. H. Wells. —p. 810.
Last Twenty-Five Years in Country Practice. S. Ericson.—p. 815.

28:873-960 (Nov.) 1945

Pathologic Conditions in Bronchi and Esophagus. V. J. Schwartz. —p. 897.
Laboratory Aids in Early Recognition of Liver Disease. F. W. Hoffbauer.—p. 903.
Complications of Pneumonia. J. F. Briggs.—p. 907.
*Total Excision of Patella for Arthritis of Knee. H. H. Young and J. M. Regan.—p. 909.
Summary of Neurosurgical Cases Treated in U. S. Army. W. P. Ritchie, L. A. French and L. A. Titrud.—p. 914.

Excision of Patella.—The report by Young and Regan is based on 21 cases of arthritis of the knee in which excision of the patella was performed at the Mayo Clinic. Fourteen of the patients had osteoarthritis of the knee with moderate or severe involvement of the patella. In 6 cases the arthritis was of the rheumatoid type. In the remaining case, traumatic arthritis had followed recurrent dislocation of the patella. The ages of the patients ranged from 18 to 66 years. Both patellas were excised in 5 of the cases. All of the patients complained of pain in the knee with use. Sixteen of the patients had flexion deformities of the involved knee and only 3 patients had normal motion before operation The remaining 2 patients had complete extension but limited flexion of the involved knee. The excision of the patella was accomplished through either a vertical or a parapatellar incision, and care was taken to suture the reflected portions of the patellar tendon with either chromic catgut or silk sutures after the enucleation of the patella. Postoperative immobilization in extension was maintained for seven to ten days by means of a plaster cast. At the end of this period, physical therapy was started. In some cases motion was regained early, while in others several months were required for the return of motion. In 7 of the 14 cases of osteoarthritis the results were excellent, no pain remaining in the involved knee. The leg can be extended to an angle of at least 170 degrees and flexed to an angle of at least 90 degrees. In the remaining 7 cases of osteoarthritis the results were good in 4, fair in 2 and poor in 1 case. In the cases in which the results were classified as good the pain was relieved but there still was some limitation of motion. In the cases in which the results were classified as fair the pain was relieved almost completely but the range of motion was only a few degrees. In the case in which the results were poor a painful genu varum developed as a result of a destructive process in the medial tuberosity of the tibia. In 4 of 6 cases of rheumatoid arthritis less pain remains than before the operation. Good results were obtained in the 1 case of traumatic arthritis.

New England Journal of Medicine, Boston

233:485-514 (Oct. 25) 1945

*Absorption, Excretion and Toxicity of Streptomycin in Man. D. G. Anderson and Marjorie Jewell.—p. 485.
Reconstructive Surgery of War Wounded. P. D. Wilson.—p. 492.
Pathogenesis of Renal Insufficiency. S. E. Bradley.—p. 498.
Multiple Cysts of Femur? Excessive Callus Formation?—p. 504.
Osteoid Osteoma of Humerus.—p. 508.

233:515-546 (Nov. 1) 1945

Unusual Aspects of Cancer of Breast. E. M. Daland.—p. 515.
Boston Medical Library. D. Cheever and H. R. Viets.—p. 520.
Liver Abscess, Pneumonia and Empyema Due to Friedländer's Bacillus in Diabetes Mellitus: Report of 2 Cases with Recovery in 1. E. P. Sheridan.—p. 528.
Pathogenesis of Renal Insufficiency. S. E. Bradley.—p. 530.
Acute and Chronic Salpingo-Oophoritis, with Bilateral Tubo-Ovarian Abscesses.—p. 536.
Rupture of Arteriosclerotic Fusiform Aneurysm of Abdominal Aorta. —p. 540.

Absorption, Excretion and Toxicity of Streptomycin in Man.—Anderson and Jewell studied the absorption and excretion of streptomycin in man. The subjects used for the pharmacologic studies were adult ward patients. Streptomycin was dissolved in distilled water for intravenous, intramuscular and subcutaneous administration in concentrations varying from 50,000 to 150,000 units per cubic centimeter. The solutions used for intrathecal administration varied in concentration from 2,500 to 5,000 units per cubic centimeter. The solutions of the drug were stored at 5 C. until time of use. The authors point out that a unit of streptomycin represents a much smaller amount of antibacterial activity than a unit of penicillin. Thus, when the action of the two substances is studied against Staphylococcus aureus (strain SM), an organism against which both drugs are active, it is found that the growth of this organism is completely inhibited by 0.08 unit of penicillin, whereas the smallest amount of streptomycin that causes complete inhibition is 1 unit. A unit of penicillin represents approximately twelve times as much antibacterial activity for this test organism as does a unit of streptomycin. On the basis of studies on the absorption of streptomycin with various routes of administration, the authors assert that streptomycin is not absorbed after oral administration in amounts sufficient to produce detectable concentrations of the drug in the serum. The failure of the drug to be absorbed from the gastrointestinal tract is not due to the inactivation of streptomycin by the gastric juice. The curves of the serum concentrations of the drug after the intramuscular or intravenous injections do not differ significantly except during the first few minutes after injection. Following the intramuscular or intravenous administration of a single dose of streptomycin, 46 to 87 per cent of the dose injected can be recovered in the urine within twenty-four hours. Streptomycin is excreted more slowly by the kidneys than is penicillin. It appears likely that effective blood levels of streptomycin can be maintained by administering the drug at intervals of six to eight hours. In patients with meningitis, streptomycin diffuses to a slight extent from the blood into the cerebrospinal fluid. The intrathecal administration of streptomycin in doses up to 20,000 units does not produce signs of meningeal irritation. With doses of 10,000 to 20,000 units an appreciable concentration of the drug can be maintained in the cerebrospinal fluid for at least twenty-four hours. No serious toxic reactions follow the injection of single doses of streptomycin in amounts up to 600,000 units or after the continued administration of the drug for periods of two to three weeks in doses totaling 2,725,000 to 18,150,000 units. The intravenous and subcutaneous injection of concentrated solutions of the present preparations of streptomycin causes too much discomfort to warrant the use of these methods of administration. The drug can be administered in an intravenous infusion without the production of unpleasant symptoms. Intramuscular injections are fairly well tolerated for periods up to one to two weeks. Therapy continued beyond these times may cause severe discomfort.

New Orleans Medical and Surgical Journal

98:145-194 (Oct.) 1945

Treatment of Leprosy with Diasone: Preliminary Report. G. H. Faget and R. C. Pogge.—p. 145.
Endemic (Murine) Typhus Fever in Louisiana. R. L. Pullen and B. M. Stuart.—p. 150.
Ruptured Right Ethmoids with Orbital Cellulitis. H. A. Thomas.—p. 154.
Some Notes on Early History of Pulmonary Tuberculosis in Louisiana. W. D. Postell.—p. 155.
History of Blood Transfusion. T. G. Baffes.—p. 159.

New York State Journal of Medicine, New York

45:2127-2238 (Oct. 15) 1945

*Abnormalities of Parathyroid-Calcium-Phosphorus-Vitamin D Complex. J. F. Hart and J. R. Lisa.—p. 2173.
Diagnosis of Loeffler's Syndrome: Transient Lung Infiltration with Eosinophilia. E. E. Gottdiener.—p. 2179.
*Inhibition of Dental Caries by Ingestion of Fluoride-Vitamin Tablets. L. P. Strean and J. P. Beaudet.—p. 2183.
Results in Treatment of Skin Cancer. L. B. Goldman.—p. 2186.
Reiter's Disease: Report of Case Successfully Treated. A. Strachstein. —p. 2190.
Intrasternal Administration of Pentothal Sodium. S. L. Lieberman. —p. 2191.

45:2239-2350 (Nov. 1) 1945

War Neurosis As It Is Related to Psychosomatic Medicine. F. Kennedy. —p. 2285.
Tropical Diseases in Returning Soldiers. G. C. Shattuck.—p. 2291.
Recent Trends in Urology and Their Application to General Practice. A. M. Crance.—p. 2295.
Psychosomatic Aspects of Gynecology and Obstetrics. G. W. Kosmak. —p. 2298.
Puerperal Inversion of Uterus: Report of 3 Cases. Clara Benson. —p. 2305.
Intra-Abdominal Hernia with Acute Intestinal Obstruction. L. K. Stalker.—p. 2307.

45:2399-2462 (Nov. 15) 1945

Tropical Diseases, with Spcial Reference to Filariasis (Wuchereria Bancrofti). H. W. Brown.—p. 2405.
Uremia: Diagnostic Pitfalls and Therapeutic Problems. J. Sachs. —p. 2412.
Umbilical Changes During Pregnancy. L. Drosin.—p. 2417.
Trends in Medical Care Insurance in New York State. G. P. Farrell. —p. 2419.
Role of Trauma in Acute Coronary Thrombosis: Clinical Study of 200 Cases. G. A. Race.—p. 2422.
Lead Poisoning in a Furrier. A. Schick.—p. 2423.
Malaria Due to Plasmodium Falciparum in New York. H. B. Shookhoff and P. Strax.—p. 2425.

45:2463-2590 (Dec. 1) 1945

Summary of Problems of Sulfa and Penicillin Fastness. M. L. Tainter. —p. 2509.

Abnormalities of Parathyroid - Calcium - Phosphorus - Vitamin D Complex.—Hart and Lisa report 9 cases classified as abnormalities of the parathyroid-calcium-phosphorus-vitamin D complex among 91,000 admissions to the City Hospital during the decade of 1935 to 1944. There were 3 patients, 2 women and 1 man, with adenoma of the parathyroid, and 4 patients with bone cysts (1 man, 2 women and 1 boy); 1 case in a man was diagnosed as osteogenesis imperfecta and 1 case in a woman as tetany due to calcium deficiency. There were 7 of the 9 cases in which bone changes were outstanding, 1 case in which kidney changes predominated and 1 in which tetany was the most prominent clinical symptom. Two of the 9 patients had complications. Nephritis and uremia developed in case 2, and there was a history of epilepsy in case 8. There were 3 cases with definite hypercalcemia (those with proved adenoma), 1 with mild hypercalcemia (11.9 mg.), 1 with high normal (11.2 mg.), 1 with both hypocalcemia and hypercalcemia, 1 with normal values, 1 with hypocalcemia and 1 not taken. Except for the second patient, who developed hyperphosphatemia and died in uremic coma, the blood phosphorus stayed within normal bounds. The phosphatase reports were meager. In cases 1 and 2 there was evidence of bone disorder. Removal of a parathyroid adenoma was successful in stabilizing the blood calcium in 3 cases. The first 2 patients developed tetany on about the fifth postoperative day. The therapeutic response to large doses of calcium with parathyroid extract or large doses of vitamin D was satisfactory in all 3 cases. The 4 cases of bone cysts were successfully handled by local surgery. Laboratory studies gave little evidence of a systemic calcium-phosphorus-phosphatase upset, but the pathologic change in the cyst is identical with that found in the generalized form associated with hyperparathyroidism and thereby seems to be a related condition. The eighth case in this series, with a history of epilepsy and with pathologic fractures, bone changes and positive changes in the calcium levels of the blood, points strongly to a parathyroid adenoma; it might have been better diagnosed with present day methods. The ninth case presents a rare type of spontaneous tetany in an elderly person with bone changes but without kidney changes. It could very well have been a lack of vitamin D, as it responded to the usual rickets treatment. The Sulkewitz test for calcium in the urine was employed only once and that time gave evidence of hypercalciuria. Although this test is crude and is influenced by the calcium in the diet, it is useful. No case in this category should go without some estimation of the urine calcium excretion.

Inhibition of Dental Caries by Ingestion of Fluoride-Vitamin Tablets.—Strean and Beaudet report clinical trials with calcium fluoride-vitamin D in children between the ages of 8 and 13. One hundred and seventy-one children were studied in the first series. These were divided into 3 groups of 57 each. The first group received a yellow tablet containing 3 mg. of calcium fluoride, 30 mg. of ascorbic acid and 400 units of vitamin D as calciferol one tablet a day; the second group received one white tablet containing only 3 mg. of calcium fluoride. The third group served as the control and did not receive any tablets. The experiment lasted for six months, and the study was limited to permanent teeth. Sixty children were studied in the second series. Thirty children were given one yellow tablet a day, and the other group of 30 served as controls and did not receive any tablets. This study was continued for eight months. The children in both series lived in an orphanage under similar conditions of diet, and each child had at least three cavities as judged by x-ray. In addition to these two series, tablets were given to a number of dentists who were to distribute them to patients between the ages of 8 and 16. Children between the ages of 8 and 16 not receiving fluorine in their water or food may expect on the average an increase of When cal- 40 to 65 per cent in the incidence of dental caries. cium fluoride was given to the children in the first series the increase in caries was reduced to 27 per cent, and when vita- mins C and D were combined with the tablet the incidence was reduced further to 24 per cent. In the second series, even though this experiment ran two months longer than the first one, the increase dropped to 10 per cent as compared to 24 per cent in the first experiment. It is suggested that this decrease may be explained by the synergistic action of vitamins C and D with fluorine. Fluorapatite may be adsorbed from the surface of tooth enamel and is resistant to bacterial decomposition and lactic acid digestion. Fluorine combined with vitamins C and D in the form of a tablet offers a means of controlling the amount of fluorine to be ingested.

Northwest Medicine, Seattle

44:303-342 (Oct.) 1945

Abnormalities of Conjugate Ocular Movements. S. E. C. Turvey. —p. 306.
Administration of Penicillin: Simplified Technic. N. W. Clein.—p. 309.
Streptococcic Dissociation in Otitis and Mastoiditis. E. E. Brown. —p. 311.
Arteriography in Diagnosis of Upper Abdominal Conditions. O. A. Nelson.—p. 314.

44:343-374 (Nov.) 1945

Investigation of *Blood Transfusion* Reactions. J. R. Czajkowski.—*p. 347.
Ombredanne Operation for Undescended Testicle: Cryptorchism. J. P. Schutt.—p. 349.
Rapid and Intensive Treatment of Syphilis and Gonorrhea: Report of 748 Discharged Cases. Clark County-Vancouver *Health Department*. S. P. Lehman, Jean H. Basilicato and Lila Anderson.—p. 351.
Correction of Chordee and Hypospadias. C. D. Goodhope.—p. 356.

Public Health Reports, Washington, D. C.

60:1323-1354 (Nov. 9) 1945

Industrial Mental Hygiene Program for Federal Employees. J. W. *Cronin, B. Solby and W. S. Wilder.—p. 1323.*
Effect of *Temperature* on Sex Ratio of Xenopsylla Cheopis Recovered from Live Rats. L. C. Cole.—p. 1337.

60:1355-1382 (Nov. 16) 1945

Studies of Acute Diarrheal Diseases: X D. Further Studies on Relative Efficacy of *Sulfonamides in Shigellosis. J. Watt and S. D. Cummins.* —p. 1355.
Plague Infection Reported in United States During 1944 and Summary of Human Cases, 1900-1944. B. C. Hampton.—p. 1361.
Plague Infection Reported in Territory of Hawaii During 1944 and Summary of Human Cases, 1899-1944. B. C. Hampton.—p. 1365.
Local Health Units for Nation. G. T. Palmer.—p. 1368.

60:1383-1414 (Nov. 23) 1945

Studies of Role of Fungi in Pulmonary Disease: I. Cross Reactions of Histoplasmin. C. W. Emmons and B. J. Olson.—p. 1383.
Health Education in Public Health Program. *M. Derryberry.—p. 1394.*

Southern Medical Journal, Birmingham, Ala.

38:707-772 (Nov.) 1945

*Observations on Antianemic Properties of Synthetic Folic Acid. T. D. Spies, C. F. Vilter, Mary B. Koch and Margaret H. Caldwell.—p. 708.
Urinary Calculosis as Phase of Crystallizing Pyelonephritis. L. D. Keyser.—p. 709.
*General Manifestations of Salicylism. C. M. Caravati and C. B. Whims. —p. 722.
Acute Barbiturate Poisoning. W. E. Percy Jr. and J. S. LaDue.—p. 726.
Nutritional Deficiency as an Etiologic Factor in Icterus Accompanying Pneumonia in the Negro: II. Value of Brewers' Yeast in Preventing Icterus in Pneumonia. M. J. Bent, E. L. Turner, G. D. Halloway and J. R. Cuff.—p. 730.
*Newer Aspects of Erythrocyte Formation and Its Clinical Significance: Preliminary Note. J. E. *Sherman.—p. 733.*
Acute Porphyria: Report of 2 Cases. S. C. Little and F. E. Rose. —p 737
March Hemoglobinuria, with 2 Case Reports. R. G. Fleming and J. M. Kinsman.—p. 739.
Surgical Treatment of Hyperthyroidism. G. T. Howard Jr.—p. 742.
Splenic Rupture in Therapeutic Malaria. W. R. Moses.—p. 745.
Abdominal Pregnancy: 3 Cases of Near or Past Term with 1 Case of Early Abdominal Pregnancy. G. G. Greene.—p. 747.
Bilateral Mastoiditis in 8 Weeks Old Baby, June 1945. P. L. *Mahoney.* —p. 752.
Peptic Ulcer as Cause of Abdominal Symptoms in Congestive Heart Failure. J. A. Boone, R. R. Coleman and S. *Prystowsky.—p. 753.*
Causal Relationship Between Os Calcis and Shape of Leg. M. Eichwald. —*p. 755.*
Erysipelas on the Isthmus of Panama. W. C. Miller, H. A. Tucker and B. H. Kean.—p. 757.
Scarlet Fever on the Isthmus of Panama. H. A. Tucker, W. C. Miller *and B. H. Kean.—p. 761.*
Acute Bacterial Endocarditis in Drug Addict: Case. E. T. Brading. —p. 765.

Antianemic Properties of Synthetic Folic Acid.—Spies and his associates studied the effect of numerous substances on reticulocytosis, leukocytic equilibrium and red cell and hemoglobin regeneration. The substances tested included niacin, thiamine, riboflavin, calcium pantothenate, pyridoxine, inositol, para-aminobenzoic acid, choline, pyridoxamine and pyridoxal. They were found to be of little efficacy in treating this type of anemia. Crude folic acid concentrates likewise produced little specific hematologic response. While fractioning reticulogen, Cline isolated several materials of unknown structure which, when given parenterally to patients with macrocytic anemia, produced reticulocytosis. The reticulocytosis which occurs following the administration of a synthetic substance, Lactobacillus casei factor, considered a part of the B complex, is of great interest. The L. casei factor dissolved in isotonic solution of sodium chloride and made alkaline with small amounts of sodium bicarbonate was given intravenously to 5 subjects with macrocytic anemia in relapse. Similar to the subjective sensation that comes on the patient with macrocytic anemia in relapse several days after liver extract, these patients felt a definite upsurge of well being three or four days after the first injection. Persons with macrocytic anemia in relapse have a significant hemopoietic response following the administration of synthetic folic acid. This response follows either parenteral injection or oral administration. In every instance the number of reticulocytes increased in the peripheral blood, and the red blood cell counts and hemoglobin content rose toward normal levels.

Salicylism.—Caravati and Whims present evidence which indicates that the prominent symptoms of salicylism are manifestations of the central effect of the drug; that tinnitus, dizziness, nausea, vomiting, fever, tachypnea and encephalopathies noted when large doses of salicylates were administered are caused by the effect of the drug on the higher centers. Intravenous salicylate therapy is unnecessary. Alkalis should not be given concomitantly with salicylates when it is desirable to reach a high plasma level but should be reserved for use when toxic symptoms develop. Plasma salicylate levels are promptly reduced by alkali therapy.

Erythrocyte Formation.—Sherman studied several patients with pernicious anemia during treatment in which there was a sustained reticulocytosis at a level much higher than can be attained by parenteral liver therapy. To achieve this the hormone addisin (from gastric juice) was used. The total red blood cell count does not materially increase until the reticulocytes disappear. If the reticulocytes were or became red blood cells, the increase should be immediate. Sherman assumes that the nuclear particles, normoblasts and reticulocytes which appear before the red blood cells are agents which stimulate the bone marrow to produce mature red blood cells. He believes that the normoblast, the nuclear particles and the reticulocytes contain in themselves some agent different from the hormone in the gastric juice which stimulates their appearance in the blood stream. This agent is at present unknown but is probably a hormone. When this factor is isolated from the reticulocytes, nuclear particles and normoblasts, it will be capable of causing an immediate regeneration of red blood cells.

Surgery, St. Louis

18:529-662 (Nov.) 1945. Partial Index

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Operative Results of Surgery of Colon for Neoplastic Disease. R. Z. Pierpont, F. R. Peterson and J. W. Dulin.—p. 541.
Observations on Large Bowel Perforations. H. A. Weinberger.—p. 547.
Small Bowel Stricture Following Irradiation Therapy for Carcinoma of Fundus Uteri. H. C. Saltzstein.—p. 556.
Closure of Duodenal Fistula: New Technic. W. H. Snyder Jr., C. J. Berne, H. I. Ridell and E. L. Turner.—p. 562.
Method of Implanting the Pancreatic Duct into Jejunum in Whipple Operation for Carcinoma of Pancreas. R. L. Varco.—p. 569.
Subtotal and Palliative Gastrectomy for Chronic Gastric Ulcer. R. Colp and L. Druckerman.—p. 573.
*Hypochloremic State in Surgical Patients. C. Ireneus Jr.—p. 582.
New Technic for Parenteral Fluid and Drug Administration: I. Muscular Intubation. R. E. MacQuigg.—p. 592.
Studies on Mechanism of Citrate Intoxication in Massive Transfusions of Whole Blood. T. F. Thornton Jr., W. E. Adams and L. M. Carlton Jr.—p. 595.
Spicular Foreign Bodies in Esophagus: Report of 3 Unusual Cases. I. A. Bigger, E. B. Newborne and P. P. Vinson.—p. 603.
Surgical Problem of Cancer in Lymph Nodes. E. D. Sugarbaker.—p. 608.
Effect of Total Thyroidectomy on Experimental Production of Peptic Ulcer. P. P. T. Wu.—p. 619.
Healing of Arteries and Relationship to Secondary Hemorrhage. G. Murray and J. N. Janes.—p. 624.
Experimental Vascular Surgery. S. Smith.—p. 627.
Suture of Popliteal Artery: Report of 3 Cases. P. R. Imes.—p. 644.
Multiple Arteriovenous Aneurysms: Report of Case of Four Arteriovenous Aneurysms in 1 Individual. H. B. Shumacker Jr.—p. 646.
Skin Transposition in Incisional Defects: Modification of Z Plastic for Primary Skin Closure Following Extensive Breast Surgery. E. S. Sinaido.—p. 650.
Use of Cotton Sutures in Lower Abdominal Surgery. H. J. Flax.—p. 653.

Hypochloremic State in Surgical Patients.—Ireneus warns that severe hypochloremia may occur when postoperative patients are on a restricted salt intake. If salt solution is not given in these cases, serious results may ensue. The onset of clinical hypochloremia is insidious. The most important diagnostic lead is obtained by realizing that large amounts of electrolytes and chlorides have been lost without being compensated (for example, bile fistula, vomiting and high intestinal fistula). The clinical picture presents itself as one of shock (blood chlorides below 300 mg. per hundred cubic centimeters). The skin is cold and clammy, and the patient complains of extreme weakness. The pulse and blood pressure are usually unobtainable. The urinary output has acutely decreased to 100 cc. or less for twenty-four hours, with a corresponding rise in the nonprotein nitrogen. The temperature is subnormal. The author presents 4 cases of hypochloremic state occurring in surgical patients. They differ as to the mechanism of the chloride loss. The first case concerned a woman aged 23 with extensive granulating areas following a burn involving 35 per cent of the body surface. Her anemic and hypoproteinemic state was adequately corrected with whole blood and plasma. However, the author failed to appreciate that huge quantities of chlorides and other electrolytes could be lost through the extensive granulating areas until a picture of acute prostration and impending shock presented itself with a blood chloride reading of 327 mg. per hundred cubic centimeters. Ten thousand cc. of parenteral fluids containing 81 Gm. of salt was needed to elevate the blood chloride reading to 445 mg. per hundred cubic centimeters on the following day (normal 450 to 500 mg. per hundred cubic centimeters). The amount of salt given here is considerably more than that which would be given by the Coller "clinical rule" and perhaps was more than was actually needed; nevertheless, the clinical response was immediate and ideal. Hypochloremia in the second case was produced by excessive loss of chlorides through vomiting. The third patient developed hypochloremia because of cholorrhea through a persistent external biliary fistula created when the common bile duct was opened to drain a suppurative cholangitis. A fourth case of painless progressive icterus due to a carcinoma of the common bile duct is similar to the third case except for the absence of a complicating suppurative cholangitis. A high daily maintenance dose of salt was necessary also in this case to compensate for that lost by the bile fistula.

Tennessee State Medical Assn. Journal, Nashville

38:315-352 (Oct.) 1945

Some Modern Medical Problems. R. B. Wood.—p. 315.
Occupational Dermatitis. C. Shaw.—p. 319.
Psychiatric Points of Interest for General Practitioner. J. C. Hill.—p. 324.
Mental Symptoms at Male Climacteric. F. E. Jones.—p. 328.
Future of Medicine. J. H. Fitzgibbon.—p. 332.

38:353-394 (Nov.) 1945

Review of Cholecystectomies Done at a General Hospital from 16 November 1943 to 1 January 1945. B. H. Marshall.—p. 353.
Development and Early Diagnosis of Bronchiectasis. J. D. Hughes.—p. 355.
*Clinical Study of Tetanus: Analysis of 121 Cases of Tetanus. C. N. Gessler.—p. 363.
Subcostosternal Diaphragmatic Hernia: Report of Asymptomatic Case. P. E. Wylie.—p. 366.
Fifty Years of Neurosurgery. C. Pilcher.—p. 370.
Medical Education, Lay Education and Quackery. T. S. Wilson.—p. 374.

Tetanus.—Gessler analyzed the records of 121 cases of tetanus treated in four hospitals in the twelve years between 1933 and 1944. The average incubation period of those who recovered is 16.44 days, while it was 10.24 days in those who died. It has been long recognized that the incubation period is an important factor in determining prognosis, the short incubation period providing poor prognosis. However, in dealing with an individual case one cannot formulate the prognosis from the incubation period, for many cases that went on to recovery had a shorter incubation period than many cases in which recovery did not occur. The mortality rate was 53.7 per cent. More patients recovered among those who did not have prophylactic first aid than among those who did. More recovered also among those who did not receive prophylactic antitoxin. Thus prophylactic treatment is disappointing. Intravenous or intramuscular injection of tetanus antitoxin is preferable to other routes of injection. An adequate amount of antitoxin would appear to be about 25,000 units for the average case. Intrathecal injection of antitoxin is more hazardous than effective. Local injection of antitoxin about the site of infection seems without value. The older theory of the ability of tetanus toxin to travel up nerve sheaths to reach the central nervous system has given away to the theory of blood stream circulation of the toxin. Hence a liberal surplus of antitoxin injected into the circulation should neutralize the toxin being produced at the site of infection. The patient must have adequate sedation from the beginning of the disease. The use of sodium amytal and/or solution of tribromoethanol is satisfactory in most cases.

Texas State Journal of Medicine, Fort Worth

41:335-388 (Nov.) 1945

Socialized Medicine and Its Pay Roll Taxation. W. W. McAllister. —p 340.
Use of Aluminum Penicillin Mixtures in Maintenance of Blood Levels of Penicillin: II Combination of Delayed Absorption by Use of Aluminum Penicillin and Renal Blockage with Benzoic Acid S W. Bohls and E. B. M. Cook —p. 342
Treatment of the Minimal Lesion C. M. Hendricks —p 344
Recent Advances in Study of Pertussis. W L Bradford —p 348
Brucellosis or Chronic Undulant Fever. J. W Torbett Sr —p 350
Pleural Mesothelioma, with Report of Case Presenting Some Unusual Aspects. W. W. Coulter Jr —p 353
Ruptured Intervertebral Disk R L Sewell —p 357.
Preventable Fetal Death. J. G. Sinclair —p 359
Typhus Control, A Border Public Health Problem F. A. Muszecchio. —p. 361.
Planning a Routine Immunization Program W R Ross —p 365.

Urologic & Cutaneous Review, West Palm Beach, Fla.

49:661-726 (Nov.) 1945

Thrombosis and Thrombophlebitis of Renal Veins B. S Abeshouse. —p. 661.
End Results in Treatment of Bladder Tumors. F. J. Parmenter.—p. 676.
Has Prostate Gland an Internal Secretion? R Oppenheimer.—p 680.
Neurologic Manifestations During Arsenotherapy for Syphilis A G. Franks, J Fetterman and D. Romano —p. 681.
Allergic Neurodermatitis C Bernstein —p 684
Highlights of Conference in Tropical Dermatology for American Doctors H H. Perlman —p 687.
Nail and Its Diseases. H. Goodman.—p 693.

Virginia Medical Monthly, Richmond

71:455-502 (Nov.) 1945

Medicolegal Aspects of Coronary Thrombosis J M Hutcheson —p 455.
Plea for Operative Conservatism in Obstetrics S. A Cosgrove —p 459
Hearing Aids, the Otologist's Problem J Krinsky.—p. 465.
Observations in Clinical Uses of Prostigmine. C P Jones —p. 469
*Observations on Loeffler's Syndrome: 4 Cases H W. Blanton —p 473
Report of 5 Cases of Meningitis Treated Empirically with Sulfanilamide Under Rural and Low Economic Conditions C H Dawson and H D. Crow —p 480.
Splenomegaly with Hemolytic Jaundice and Bilateral Leg Ulcers A. Gentile —p 484.

Loeffler's Syndrome.—Blanton describes the histories of 4 patients presenting symptoms of Loeffler's syndrome. All gave either a personal or a family history of asthma or hay fever. On the assumption that he was dealing with an allergic reaction of the lungs in the patients with Loeffler's syndrome and that in all probability it was due to localized edema simulating angioneurotic edema, which in turn is believed to be due to hyperpermeability of the capillaries, Blanton used a sympatheticomimetic amine. He injected 0.5 cc. of epinephrine subcutaneously. Roentgenoscopy revealed that this led to the disappearance of the shadows previously seen in the lungs, but later they returned. The author regards this as evidence that his assumption was correct He observed this effect of epinephrine in 3 of his cases

Western J. Surg., Obst. & Gynecology, Portland, Ore.

53:379-412 (Nov.) 1945

Use of Drainage in Operations on Spine L S. Lucas and J. H Gill —p. 379.
Pernicious Vomiting of Pregnancy Due to Sensitivity to Semen D W James —p 380
Physical Law of Repair and Healing of Wounds: Original Hypothesis W. C Speidel —p 383.
Amputative Hemorrhoidectomy: Important Surgical Landmarks of Anorectum. C Eaton —p. 386
At What *pH* Does Pathogenic Monilia Albicans Grow Best? K. J. Karnaky.—p 390
Gastric Adenomas. Pathologic Study. J. H. Rieniets and A C Broders —p 392

Wisconsin Medical Journal, Madison

44:1065-1116 (Nov.) 1945

Method of Bowel Anastomosis Following the Rankin Mikulicz or Lahey Type of Obstructive Resection. E. S Sinaiko —p 1065
Backache in Industrial Injuries M. L Jones —p 1069
Control of Air Borne Infection, Particularly the Common Cold. S Quisling —p 1070
Etiology and Treatment for Low Back and Related Complaints R P. Montgomery —p. 1076.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted

Archives of Disease in Childhood, London

20:97-144 (Sept.) 1945

Growth and Health of Belgian Children During and After the German Occupation (1940 1944). R W. B Ellis —p 97.
Severe and Prolonged Underfeeding in African Children (The Kwashiorkor Syndrome of Malignant Malnutrition) H C Trowell —p. 110
Penicillin in Infections of Infancy. E. C R Couper —p 117
Pulse Rate and Blood Pressure in Infancy and Early Childhood. G. M. Allen Williams —p 125.
*Renal Venous Thrombosis and Infarction in the Newborn. J. E Morison —p 129.
*Bilateral Adrenal Hypertrophy in Infancy M. O Skelton —p 135
Splenomegaly and Hepatomegaly in Adolescent Simulating Banti's Syndrome A F. MacCabe and W. G. Taaffe —p 138
Spontaneous Pneumothorax in Infancy. I. Higgins —p 141

Renal Venous Thrombosis and Infarction in the Newborn.—According to Morison, *hemorrhagic infarction of the kidney is usually considered to be secondary to venous thrombosis.* The author describes 18 cases. *All but 1 of these* occurred in the neonatal period. *In 5 newborn infants thrombi* formed in the intrarenal veins *without producing* infarction of the kidney. In another 5 cases *thrombi* resulted in hemorrhage between the tubules of some renal papillae, in 2 others there was extensive disruption, especially of the medulla, by effused blood, and 2 cases showed both red and pale venous infarcts. These cases are compared with 4 in which there was hemorrhagic infarction without thrombi in the veins, and with 4 in which similar but less severe lesions resulted from pyelonephritis Thrombi were organized or covered by endothelium in 11 cases and had formed first in the small intrarenal branches. Dehydration, continued sepsis and renal venous stasis, but not renal inflammation, appeared to be important in their etiology. Emboli in the small pulmonary arteries and sometimes small areas of infarction occurred in the lungs of 9 of the 14 cases of idiopathic renal venous thrombosis.

Bilateral Adrenal Hypertrophy in Infancy.—A boy aged 6 weeks died of a rapidly fatal disease characterized by severe vomiting with signs suggestive of cardiovascular disturbance—an attack of extreme pallor which ushered in the disease, and respiratory involvement, collapse of the lungs and severe cyanosis At necropsy there were two abnormalities, huge adrenals and a relatively small thymus. There appear to be two classes of children with bilateral adrenal hypertrophy: the first class exhibits features of pseudohermaphroditism, the children often dying with severe, even projectile, vomiting; the second class presents a history similar to that of the child described by Skelton in this paper. They are normal children, more commonly male than female, who in early infancy, usually between 3 and 6 weeks of age, are taken ill with severe vomiting and ultimately die. The underlying nature of the disease is unknown.

British Heart Journal, London

7:107-160 (July) 1945

*Paroxysmal Tachycardia in Infancy and Childhood C. Neubauer. —p 107.
Traumatic Rupture of Interventricular Septum. T. East.—p 116
Multiple Chest Lead Cardiograms and Their Clinical Value. E. H. Roche —p 119
*Heart Block in Diabetic with Only Mild Arteriosclerosis F. Dreyfuss —p 128
Arterial Thickening in Old Age. T H. Howell —p 135
Malignant Hypertension Cured by Unilateral Nephrectomy. C. B. Perry. —p 139.
Cardiac Output in Case of Pericardial Effusion, with Note on Pericardial Pain C. M. Fletcher —p 143.
Tuberculous Pericarditis with Effusion. P. Ellman —p. 147.

Tachycardia in Infancy and Childhood.—Neubauer reports 11 cases of paroxysmal tachycardia observed from 1941 to 1945. Three of the patients were infants of less than 1 year of age; the other 8 were between 3 and 6 years of age. The onset of paroxysmal tachycardia is sudden. The attack lasts for minutes, hours or days. The child appears acutely ill. It is restless at the outset but apathetic once the attack is developed and is pale and often cyanosed There is respiratory distress, with rapid and shallow respirations During the attack, most commonly the heart rate is 160 to 200 a minute, but rates of 270 and 300 have been observed. Between and following attacks premature beats are often found. Signs of congestive heart failure may develop. The heart condition was associated with various infections, diphtheria being most frequent. Distinctive pathologic changes either in the myocardium or in the conductive tissue have not been found in 3 cases in which necropsy was performed. Digitalis given promptly may be effective and save the child's life. Digitalis was not successful in the diphtheria cases of the series. In a case of meningitis, flutter was changed into fibrillation, and this was controlled by digitalis. Quinidine and magnesium sulfate intravenously were also not always satisfactory. Pressure on the carotid sinus or the eyeball, which may stop an attack in an adult, was not effective in infants. This report indicates a rather poor prognosis for paroxysmal tachycardia in infancy and childhood. When a mild infection has been the causative factor, the response to treatment is probably better.

Heart Block in a Diabetic Patient.—Dreyfuss reports that a man aged 58, with complete auriculoventricular block, presented at necropsy only mild arteriosclerotic changes, especially of the coronary circulation. Many series of Adams-Stokes attacks had occurred, accompanied by Cheyne-Stokes respiration. These seizures were caused by ventricular standstill and finally also by ventricular fibrillation. These mechanisms were demonstrated by electrocardiograms; in 1 instance even auricular stoppage was graphically demonstrated. As the anatomic findings do not explain the profound disturbances of cardiac action, and as these attacks usually occurred when diabetic balance was seriously upset, an attempt is made to explain the changes in cardiac behavior by metabolic fluctuations. The appearance of the attacks was controlled largely by the control of diabetes. Only insulin and dextrose respectively were effective in controlling the seizures. Atropine, ephedrine, erythrol tetranitrate and potassium iodide were of no avail. Aminophylline sometimes seemed to shorten attacks when given intravenously and definitely influenced only Cheyne-Stokes respiration. Caffeine occasionally seemed to shorten an attack. Oxygen did not abolish the attacks but had, at least for a few weeks, an interesting effect: during its administration no epileptic convulsions appeared and consciousness was usually not lost completely; the pulse did not entirely disappear, but the periodicity of respiration and cardiac disturbance remained uninfluenced. When oxygen administration ceased, a violent seizure followed almost immediately. The case represents a rare cardiocerebral complication in a diabetic patient the severity of which is illustrated by the violence of the seizures and by the fatal outcome. It belongs in the category of heart disease which might be designated as "nutritional heart disease."

British Medical Journal, London

2:521-556 (Oct. 20) 1945

Indications for Surgery in Penetrating Wounds of Chest: Importance of Pulmonary Injury. G. Qvist.—p. 521.
*Outbreak of Epidemic Diarrhea and Vomiting in General Hospital and Surrounding District. G. Brown, G. J. Crawford and Lois Stent. —p. 524.
Tick Borne Relapsing Fever in Cyprus. R. C. Wood and K. C. Dixon. —p. 526.
Prophylaxis of Paralytic Ileus by Administration of Morphine. J. T. Chesterman and W. J. Sheehan.—p. 528.
Acid Fast Organisms in Gastric Resting Juice. J. Yates.—p. 530.
Massive Surgical Emphysema, Pneumothorax and Pneumoperitoneum. R. Jones.—p. 530.
Note on Fat Embolism. H. J. Nightingale.—p. 531.
Rehabilitation of Patients Suffering from Skin Disease. R. M. Bolam. —p. 539.

2:557-592 (Oct. 27) 1945

Incidence and Causes of Blindness in British Commonwealth. A. Sorsby. —p. 557.
Observations on Edema Occurring During Course of Macrocytic Anemia. E. G. Holmes.—p. 561.
Sulfhemoglobinemia Due to Aniline Derivatives. S. Lazarus.—p. 565.
Child with Frequent Colds. D. H. Irwin and E. Frankel.—p. 566.
Mass Miniature Radiography of Factory Groups in Middlesex. W. P. Dick.—p. 568.
Case of Left Sided Appendicitis. J. W. L. Haddon.—p. 569.

Epidemic Diarrhea and Vomiting.—Brown and his associates report an epidemic of diarrhea in a thousand bed hospital with a nursing staff of 365. Attention was first drawn to the outbreak when 5 babies ranging in age from 3 to 6 days developed diarrhea. Two babies with diarrhea had been admitted previously to a surgical ward with undiagnosed acute abdominal conditions, but any contact with the babies in ward A, which was far distant from the surgical ward, could not be discovered. The cleaner of ward A had had some diarrhea and she would have been in the nursery as part of her normal duties, although without direct contact with the babies. It was soon apparent that this outbreak in no way resembled in severity a previous epidemic of neonatal diarrhea with a high mortality rate which had occurred in the maternity wards at the beginning of the year. Moreover, on that occasion adults had not been involved. Of the total of 111 cases in the present series 20 adults were admitted to the hospital with a history of symptoms, and the remaining 91 cases (including 27 members of the nursing staff and 22 babies) acquired the condition in the hospital. Daily visiting to the patients provided a constant contact with the outside community, and in several instances histories were available of other members of the family suffering from diarrhea and vomiting at about the same time. The possibility of infection brought in from the outside cannot be entirely ruled out, but the fact that 65 of the cases occurred in two neighboring wards points to a degree of local spread within the hospital. Careful inquiry failed to throw suspicion on any foodstuff, milk or water supply as a possible source of infection. Epidemiologic data and previous published work suggest that the infection is due to a virus. The author believes that the outbreak has been widespread over the country.

2:593-634 (Nov. 3) 1945

Etiology of Gallstones. J. Walton.—p. 593.
*"Acroparesthesia" and So-Called "Neuritis" of Hands and Arms in Women: Their Probable Relation to Brachial Plexus Pressure by Normal First Ribs. F. M. R. Walshe.—p. 596.
Missed Cases of Infective Hepatitis: Evidence of Liver Damage Without Symptoms Among a Community at Risk. M. R. Pollock.—p. 598.
Amputations, Reamputations and Penicillin. E. N. Callum.—p. 599.
Descent of Testis in Relation to Temperature. A. W. Badenoch.—p. 601.
"Fastness" of Staphylococci, Hemolytic Streptococci and Pneumococci to Penicillin. E. W. Todd, G. S. Turner and L. G. W. Drew.—p. 603.

Acroparesthesia of Hands and Arms in Women.—Walshe observed a number of women, mostly middle aged or elderly, normally unaccustomed to great manual effort, who, under wartime demands, were obliged to take on much heavy work. They developed numbness, tingling and "uselessness" of the hands and fingers, often associated with pain. The response to the treatments commonly adopted was uniformly disappointing, for the patient was expected to follow her normal routine of life. A few of the sufferers discovered that a rest or holiday afforded remarkable relief, suggesting a mechanical origin of the syndrome. There is almost always tenderness of the extensor muscles in the forearm and sometimes of the thenar and adductor muscles of the thumb without muscular wasting. Objective sensory loss is exceptional, although when pain and paresthesias are maximal there may be some blunting of cutaneous sensibility over the digits. Cyanosis or pallor of the fingers is occasional, but Raynaud's syndrome is not an essential part of the picture. The author is convinced that the condition is a manifestation of a rib pressure syndrome. The rib in question is the normal first rib, and traction and compression are exerted on the lower components of the brachial plexus and sometimes also the subclavian artery, when from muscular atonia the muscles supporting the shoulder girdles allow these to droop and remain at an abnormally low level. Acroparesthesia is a mechanically produced syndrome. It is not to be regarded as dependent on abnormalities of metabolism—either toxemic or due to dietary deficiency—or as related to pregnancy. The essential treatment is rest for the limbs.

Edinburgh Medical Journal

52:337-384 (Oct.) 1945

Future of Postgraduate Education in Edinburgh. L. S. P. Davidson. —p. 337.
Nucleoproteins in Growth and Development. J. N. Davidson.—p. 344.
Some Unusual Forms of Dermatitis. R. Aitken.—p. 357.
Problem of Oral Infection and Its Relation to Systemic Diseases. L. Lakner.—p. 366.
Wound Infection: The "Tissue Swab." H. L. de Waal.—p. 373.

Lancet, London

2:485-516 (Oct. 20) 1945

*Thiouracil in Goiter. H. Cookson.—p. 485.
Wounds in Region of Hip Joint. J. S. Ellis.—p. 490.
Military Psychiatric Casualties: Experience with 12,000 Cases. H. Palmer.—p. 492.
Urinary Excretion of Coproporphyrin in Nonalcoholic Pellagra. C. Rimington and Z. A. Leitner.—p. 494.
Mustard Gas Burns. I. J. Thomas and J. Gough.—p. 496.

Thiouracil in Goiter.—In 22 of 33 patients the diagnosis of toxic goiter seemed probable but not certain, and in 11 it was doubtful. The results obtained indicate that thiouracil can neutralize hypersecretion of thyroxine in cases in which the clinical diagnosis of toxic goiter is beyond doubt. Failure occurred only in 2 patients in late pregnancy and in 2 elderly women with fibrillation and heart failure, 1 of them moribund when treatment was begun. The chronic mild toxemia of a large degenerated thyroid gland probably cannot be controlled, as suggested by 2 patients in group 2 who improved after subsequent thyroidectomy. Thiouracil may be employed as a diagnostic agent in deciding to what extent symptoms are due to goiter or to other factors, such as neurosis, although anxiety neurosis may be combined with toxic goiter. If symptoms are nongoitrous in origin, thiouracil has no effect. Hypothyroidism is readily produced in those formerly suffering from hyperthyroidism, but it is extremely difficult or impossible to produce with similar dosage in those with mildly overactive or normally active goiters. Fatality in connection with thiouracil occurs with extreme depression of the leukopoietic system; the case mortality from this is under 1 per cent in the 600 to 700 cases so far reported. The other and milder toxic effects are distressing but transient if the drug is stopped or the dose reduced. The total incidence of toxic reactions in the cases under review by Cookson was 23 per cent.

2:517-548 (Oct. 27) 1945

Psychology in Medicine. M. Culpin.—p. 517.
Traumatic Hemothorax and Hemopneumothorax: Diagnosis and Treatment. T. Simpson.—p. 521.
*Direct Irradiation of Cancer of Stomach and Other Viscera Exposed Temporarily at Operation. G. C. Fairchild and A. Shorter.—p. 522.
Influence of Temperature on Sedimentation Rate: Its Clinical Significance. R. J. Weingarten.—p. 526.
Clinical Trials of Pethidine. A. J. Glazebrook and A. W. Branwood.—p. 528.

Irradiation of Cancer of Viscera Exposed at Operation.—Fairchild and Shorter propose combined surgery and direct irradiation for inoperable cancers of the stomach and other viscera. A more accurate and effective dose of radiation at high intensity can be given directly to the tumor and field of local spread, without irradiating a large amount of normal tissue, including vital organs and skin which is unavoidable when irradiating from the skin surface. The authors discuss the surgical approaches for lower esophageal and gastric cancers, also for midabdominal and lower abdominal visceral cancers such as carcinoma of the pancreas or of the descending colon and finally the thoracic approach for upper and midthoracic esophageal cancers. The operative procedures include exploration of the tumor and field of local spread by laparotomy or thoracotomy, also exploration of the whole abdomen or thorax for widespread metastases, which rule out irradiation as a curative measure. In consultation between surgeon, radiotherapist and pathologist it is decided whether the lesion is (1) operable, (2) inoperable but suitable for curative direct irradiation, (3) suitable for palliative direct irradiation only, (4) suitable for palliative operation only or (5) unsuitable for any treatment. When direct irradiation is contemplated, extension of the incision may be necessary. When indicated, operations to relieve obstruction, e. g. gastrojejunostomy and gastrostomy, are done before the irradiation. The tumor is isolated in the open wound and normal viscera are displaced by retraction and packing to minimize the irradiation of normal tissues. Sterilized oiled silk or transparent rubber sheeting protects the field against infection during irradiation. Lead screening is applied to the skin edges when necessary. After the irradiation has been given, the wound is closed. Originally the authors used only one tube to administer a single dose of irradiation directly to the lesion through a parietal opening at the time of operation. This was followed in days by a further dose given through the skin. In later cases the method was modified to give an adequate total dose at one exposure. In the second method two tubes were used. A figure of 1,300 roentgens was decided on as a minimal dose throughout the tumor, entailing a surface dose of 1,350 roentgens from each of the tubes simultaneously. During the past eighteen months 15 cases of visceral cancer have been treated. In 6 of these treatment was purely palliative, because the disease had spread beyond the possible field of irradiation. Little beneficial effect was achieved in this group. From results in the other 9, comprising cancers of the stomach, abdominal esophagus, pancreas and colon, the authors feel that their method will be an advance in the treatment of inoperable cancer of the viscera.

2:549-584 (Nov. 3) 1945

Sulfonamides in Bacillary Dysentery: Further Observations on Their Effects. J. G. Scadding.—p. 549.
*Effects of Artificial Dehydration in Rheumatism. *W. S. C. Copeman and* L. G. C. Pugh.—p. 553.
Spasmodic Torticollis: Results of Psychotherapy in 21 Cases. Mary T. Paterson.—p. 556.
Cellophane Dressing for Second Degree Burns. H. Bloom.—p. 559.
Anaerobic Streptococcic Myositis. Nancy J. Hayward and R. Pilcher.—p. 560.
Short Confusional State Following Thiouracil Treatment. I. Atkin.—p. 562.
Traumatic Rupture of Second Part of Duodenum. C. V. Salisbury.—p. 562.

Artificial Dehydration in Rheumatism.—Copeman and Pugh believe that edema and the development of tension as swelling occurs is an important factor in the production of pain and local tenderness in fibrositis. They attempted to reverse this process with a reduction of the fluid content of the affected tissues by inducing dehydration. The distinction between acute and subacute rheumatism and fibrositis is not so precise as is generally held, there being many points of resemblance between them. In view of these facts some cases of acute and of subacute articular rheumatism were also submitted to dehydration. In the first 15 patients fluid intake was restricted for four days to about 8 ounces (225 cc.) daily. Owing to the discomfort caused by so long a period of restriction, it was decided to shorten the treatment to twenty-four hours. During this period neither food nor drink was taken, and fluid output was increased by the administration of sodium sulfate ½ ounce at hourly intervals for 6 doses. The quantity of feces passed was 0.5 to 4.0 liters (average 1.6 liters) and of urine 40 to 560 cc. in the twenty-four hours. As the results obtained by the second method appeared to be less satisfactory, the period of fluid restriction was raised to thirty-six hours, which remained the standard practice for the last 40 cases. Loss of weight was found to vary between 1 and 3.5 Kg. This preliminary dehydration was followed by an intravenous injection of 50 cc. of 30 per cent sodium chloride into one of the veins of the arm. At first the injection was made slowly, but this was followed by intense pain and in some cases thrombophlebitis extending up the arm for several inches. It was later found that, if the injection was made rapidly and leakage round the vein avoided, pain did not arise. Localized thrombosis still developed in about half of the cases but passed off in a few days. Immediately after the injection the patient was allowed to drink 4 ounces of tea to mitigate thirst. Apart from this no fluid was permitted for four hours, after which time further restriction was not imposed, and the patient was encouraged to be up and about. It was believed that if relief of pain should result it would be only temporary. Some patients were apparently cured. In evaluating the effects, a result which fell short of 75 per cent improvement was regarded as not successful. Of 22 patients with fibrositis 13 were graded as successful and 9 as failures. Of 19 with chronic rheumatism 13 were graded as successful and 6 as failures. Pain also disappeared, although usually only temporarily, in more than half of 28 patients with sciatica and evidence of disk prolapse. In this last group relief of pain is probably the effect of shrinkage of nervous tissue and lowering of the cerebrospinal fluid pressure due to the injection of hypertonic solution of sodium chloride.

Presse Médicale, Paris

53:513-532 (Sept. 29) 1945. Partial Index

*Results of Campaign Against Goiter in Switzerland. C. Wegelin. —p. 514.
Temporary Pulmonary Infiltrations with Blood Eosinophilia (Loeffler's Syndrome). W. Loeffler.—p. 516.
Functional Disturbances of Silicosis. L. Michaud.—p. 517.
Vagohumoral Regulation of Heart. A. de Muralt.—p. 519.
Diseases of Pulmonary Artery and Surgical Interventions. C. Henschen. —p. 520.
Circulatory Disturbances of Retina in Syndromes of Carotid Sinus. E.-B. Streiff.—p. 522.
Recent Advances in Alkaloids of Ergot. O. Stoll.—p. 523.
*Disease of Swineherds Caused by Leptospira Pomona. O. Gsell.—p. 525.

Goiter in Switzerland.—According to Wegelin, salt with a physiologic dose of iodine was first introduced for general consumption in Switzerland in the years 1922 to 1924. The salt employed contained 5 mg. of potassium iodide per kilogram of salt. At first only a small number of the twenty-two Swiss cantons made the use of this salt obligatory, but gradually other cantons followed. By 1943 there were eight cantons using the iodized salt to the extent of 100 per cent, in eight others it was used by between 50 to 90 per cent and in only six was it used by less than 50 per cent. Since 1936 in the canton of Bern iodized salt has been sold generally except when the purchaser has demanded ordinary salt because of hypersensitivity to iodine. The condition of the thyroid gland at birth is the best index of the efficacy of iodine prophylaxis. Clinicians report a great reduction in congenital goiter. In some cantons it has practically disappeared. Before the period of prophylaxis 1 out of 7 newborn infants in Bern had a large goiter; whereas now the proportion is only 1 in 500. Wespi reports similar results from the maternity hospital in Zurich. He gives pregnant women a salt which contains 20 mg. of potassium iodide per kilogram of salt. He regards 5 mg. as insufficient for pregnant women. At the Institute for Pathologic Anatomy of Bern the incidence of goiters weighing more than 6 Gm. in the newborn decreased from 70 per cent between 1909 and 1914 to 7 per cent between 1940 and 1944. The extremely large goiters, those weighing over 20 Gm., have become extremely rare, only one having been observed since 1935. In Lausanne the percentage of normal glands in persons between 5 and 25 years has increased from 13 per cent before the period of prophylaxis to 60 per cent during the last five years. Partial failure of the prophylaxis may be due to the fact that the iodized salt does not always contain the prescribed content of 5 mg. of potassium iodide per kilogram of salt. The iodized salt prophylaxis reduces the incidence of the severe types of goiter and their fatal sequels, endemic cretinism and most malignant goiters.

Disease of Swineherds a Leptospirosis.—The disease of swineherds is characterized by a diphasic febrile curve. It begins suddenly with a febrile phase of four to six days followed by an afebrile interval of one or two days, which in turn is followed by a renewed increase in temperature of short duration. During this second febrile phase the disease presents the aspects of a serous meningitis. The disease is observed in young people who come in contact with hogs or the excrements of these animals. It prevails in Savoy, the French speaking and the Bern regions of Switzerland, northern Italy and in certain parts of eastern Switzerland. A virus has been assumed as the causal factor, but numerous cases have shown the clinical aspects of a benign leptospirosis. Serologic studies which Gsell carried out during 1944 revealed that swineherds' disease is due to Leptospira pomona. His 39 patients with pomona leptospirosis all had close contact with hogs. Most of them worked on farms where from 60 to 300 hogs were kept. Some were employees of slaughterhouses or masons who had repaired hogsties, and 1 was a truck driver delivering hog feed. In 32 patients who had had the disease recently, the author obtained agglutination titers with Leptospira pomona of over 1:1,000, and in 7 who had had the disease earlier (1 patient eleven years ago) the titer was still around 1:100. The hogs of infected herds do not necessarily present symptoms, and neither did a hog that was inoculated with L. pomona. However, the blood of this animal gave a positive culture and a high agglutination titer. Serologic tests on 173 hogs from different parts of Switzerland revealed in 65 per cent an agglutination titer of 1:100 and up, and in 30 per cent it was over 1:1,000. In 2 apparently healthy hogs the urine contained leptospiras. The author concludes that hogs are the carriers of Leptospira pomona. He says that Clayton of Australia demonstrated L. pomona in young persons with a mild febrile infection who were working in dairies, but Clayton did not suspect a connection with hogs.

53:545-556 (Oct. 13) 1945

Antidiphtheritic Vaccination and Protection Against Diphtheria: New Proof of Its Effectiveness. G. Ramon.—p. 545.
Late Paralysis of Dilator Muscles of Glottis After Thyroidectomy: Pathogenic Study. P. Wertheimer and H. Martin.—p. 546.
*Importance and Value of Electroencephalography in Craniocerebral Injuries. Puech, Fischgold, Verdeaux and Brun.—p. 547.
Graphic Evaluation of Excess of Anticoagulants in Plasma. I. Bertrand and D. Quivy.—p. 548.

Electroencephalography in Craniocerebral Injuries.—According to Puech and his co-workers a patient with a recent injury and with normal electroencephalograms or with a slight deviation from normal will, as a rule, recover rapidly and without surgical intervention provided the alpha rhythm is preserved. A case with an old injury and with abnormal electroencephalographic tracings after coma has subsided presents a serious problem. Deviation from normal may be caused by hematoma, cerebral edema or hypotension. A recent fracture of the cranium, concussion and laceration of the brain may cause slight deviation from normal. The electroencephalographic studies should be made as soon as possible after injury and should be repeated as often as possible, recording simultaneously waves from various cerebral areas. Thus the tracings can aid in ascertaining an improvement in the primary lesion and clarify the situation without resort to operation. In children an injury of the same degree will cause more deviation from normal than in adults. Considerable deviations at the level of the frontal lobes should not be regarded too seriously. Preventive treatment for epilepsy with sedatives is indicated in cases in which definite deviation from normal continues for a prolonged period after injury. Electroencephalograms and the clinical course were followed for one to ten years after craniocerebral trauma in 15 patients. The tracings showed abnormalities in 9 but were normal in the remaining 6. Electroencephalograms can reveal the existence of severe trauma in the past and of a persisting cerebral lesion, but the occasional absence of electroencephalographic abnormality does not exclude the existence of a cerebral lesion.

Semaine des Hôpitaux de Paris

21:1125-1158 (Oct. 28) 1945

Prognosis of Cancer of Breast Operated On; Usefulness of Postoperative Roentgen Treatment. J. Quénu and M. Ronsin.—p. 1125.
Postoperative Roentgen Treatment for Cancer of Breast. G. Richard. —p. 1128.
Partial Excision of Breast for Cancer. J. Quénu and M. Ronsin. —p. 1131.
Extemporaneous Microscopic Examination in Tumors of Breast. M. Perrot.—p. 1133.
*Surgical Treatment for Recurrences of Cancer of Breast. J. Quénu. —p. 1137.
Palliative Surgical Treatment for Ulcerative Cancer of Breast. J. Quénu and M. Ronsin.—p. 1141.
*Reclus's Disease and Cancer of Breast. F. Fénelon.—p. 1143.
Cancer of Breast and Pregnancy. J. Perrotin.—p. 1147.

Surgical Treatment for Recurrence of Breast Cancer.—Quénu reports 27 cases of local recurrence of cancer of the breast. In 8 of these the primary intervention was limited. In 19 cases primary radical amputation included clearing of the axilla. Nine of these cases presented cutaneous or subcutaneous recurrences; in 1 case there was a recurrence in the axillary lymph nodes, 7 presented a recurrence in the subclavicular lymph nodes and in 2 cases there were "crossed" axillary recurrences. Radical amputation including dissection of the axilla and of both pectoral muscles is indicated in cases in which limited operation was originally performed. Postoperative roentgen irradiation is recommended for local recurrence in which involvement of the axillary lymph nodes was demonstrated on microscopic examination. Surgical treatment is contraindicated in cases of local recurrence with extensive involvement of the skin or of the thoracic wall, particularly in patients with primary radical operation. Definite recovery occurred in only 1 of the author's patients who survived the second operation for ten years. All the others died and the treatment did not considerably delay death or alleviate symptoms during the period of survival. Seven patients were operated on successively for cancer of the breast on both sides. In 5 of these in whom the interval between the two operations was less than four years the longest time of survival was two and a half years. In the 3 other cases, in which the interval ranged from five to eight years, the time of survival varied from six to fifteen years. Radical amputation, including dissection of the axilla, is indicated in secondary cancer, which in the absence of metastases should be treated like a primary local cancer. This applies regardless of the length of the interval between the operations for the primary and the secondary cancer. The prognosis of the second intervention is better in cases with a longer interval.

Reclus's Disease and Cancer of Breast.—Fénelon studied the records of 70 cases of cystic mastitis. Surgical intervention was performed in 52 cases during the period 1925 to 1944. Microscopic examination of 38 of these revealed cancer in 2 patients. In 14 physical reexamination in the absence of microscopic studies or written answers to a questionnaire revealed cancerous growth in 1 patient. Surgical intervention was not performed in 18 cases examined during the period 1925 to 1937. Reexamination or questionnaire revealed malignant growth in 4 cases (5.6 per cent). This percentage exceeds but little the 2 to 4 per cent ascertained by the author for cancer of the normal breast. Malignant growth in Reclus's disease occurs in women of an age in which estrone secretion is reduced. On the other hand, frequent and prolonged administration of large doses of estrone have not caused a pronounced increase in the incidence of cancer of the breast. These facts suggest that the effect of estrone on women may be different from that on mice. One hesitates to affirm that a tumor is benign. Surgical treatment, as a rule, is not indicated in definite cases of Reclus's disease, since the disease is not malignant nor does it predispose to cancer. Clinical examination three times a year or at monthly intervals is recommended in doubtful cases. Surgical intervention may be performed on older patients because of the greater incidence of cancer. Depending on the individual case, surgical treatment consists in total removal of the mammary gland or of mammectomy with the removal of the cutaneous-adipose tissue of the gland. Radical amputation with dissection of the axilla is indicated only in cases in which the diagnosis of cancer is supported by the clinical signs or by the microscopic examination of the removed tissues.

Annales Paediatrici, Basel

164:225-280 (May) 1945

*Prognosis and Late Complications of Diabetes Mellitus During Childhood. H. Rosenbusch.—p. 225.
Etiology and Pathogenesis of Arachnodactylia. K. Greiner and T. Varga.—p. 259.
Great Toe Phenomena in Healthy Children. J. Deutsch.—p. 273.

164:281-344 (June) 1945

*Prognosis and Late Complications of Diabetes Mellitus During Childhood. H. Rosenbusch.—p. 281.
*Panhemocytophthisis During Childhood. F. Oldenberg.—p. 313.
Normal Values of Pancreatic Ferments in Duodenal Juice of Children. A. Dreyfus.—p. 337.

165:1-56 (July) 1945. Partial Index

Brown Pulmonary Induration in Children with Secondary Anemia. S. Scheidegger and A. Dreyfus.—p. 2.
*Prognosis and Late Complications of Diabetes Mellitus During Childhood. H. Rosenbusch.—p. 12.
*Panhemocytophthisis During Childhood. F. Oldenberg.—p. 33.

165:57-112 (Aug.) 1945. Partial Index

*Panhemocytophthisis During Childhood. F. Oldenberg.—p. 57.
Meningitis Basilaris with Aspects of Chronic Hydrocephalus. I. Gaál and L. Páldy.—p. 104.

Prognosis and Complications of Diabetes During Childhood.—Rosenbusch finds that the long range prognosis of diabetes in childhood, in spite of the great progress in dietetic and insulin therapy, remains less favorable than had been expected. Late complications appear after fifteen or twenty years. The mental status of the diabetic child is usually normal. Rosenbusch was unable to demonstrate intelligence above average. Some diabetic children show psychopathic behavior. The occurrence of a number of organic nervous disturbances with diabetes suggests the possibility of multiple degenerative changes. Height below the average was frequently observed. Tuberculosis and diabetic nephropathy are the most important late complications. The nephropathy of young diabetic patients frequently takes the form of intercapillary glomerular sclerosis as described by Kimmelstiel and Wilson. The author describes cases of this type. Diabetic polyneuritis likewise seems to occur in the young diabetic patient. Eye complications are found fairly frequently in the growing diabetic child during systematic investigations. Examinations with Gullstrand's slit lamp revealed the existence of some opacity after a few years of diabetes in a large number of cases, which may be an early sign of an inadequately balanced metabolism. An early and carefully increasing insulinization seems to be the prerequisite for the prevention of serious disturbances in metabolism and endocrine balance.

Panhemocytophthisis During Childhood. — Oldenberg reports 3 cases of panhemocytophthisis. In 1 case the condition was produced by a micromyeloblastic leukemia, in the second case the cause could not be ascertained, and in the third agranulocytopenia developed following repeated medication with a compound containing phenylethyl hydantoin and phenobarbital. Panhemocytophthisis is a clinical entity with a multiple etiology. A constitutional weakness of the blood forming organs is assumed to exist in the majority of the cases. Association with infectious allergic disorders of the reticuloendothelial system is so pronounced that it seems justified to classify the condition as a disorder of the reticuloendothelial system. Etiologic classification includes intoxication with chemical products, allergic reactions to medicaments, irradiation, infections, blood disorders, particularly leukemias, metastases of malignant tumors, marble bone disease and deficiency diseases. There are cases in which the condition is probably of constitutional origin. The author directs particular attention to the relations between panhemocytophthisis and acute leukemia. The two diseases occur in the same age groups and develop chiefly in males. Panhemocytophthisis may be considered as a preblastomatosis, which under certain conditions may degenerate into a truly malignant leukemic proliferation of the bone marrow.

Prensa Médica Argentina, Buenos Aires

32:1987-2032 (Oct. 12) 1945. Partial Index

*Intrabronchial Hyperpressure: Etiology, Diagnosis and Complications: Presence in Bronchopulmonary Cancer. E. S. Mazzei.—p. 1987.

Intrabronchial Hyperpressure.—According to Mazzei a respiratory syndrome due to intra-alveolar hypertension during expiration is frequent in bronchial tumors, bronchial or bronchopulmonary cancer and peribronchial adenopathies of cancer. It may also be caused by foreign bodies in the bronchi, pulmonary tuberculosis and peribronchial tuberculous lymphadenitis, as well as in the course of spontaneous or artificial pneumothorax. Intra-alveolar hypertension suggests obstruction within or about a bronchus, which acts as an intrabronchial valve since it permits entrance of air into the lung with inspiration but prevents total expulsion of air during expiration. As alveolar tension increases, distention of the pulmonary alveoli occurs. Alveolar distention results in aggravation of the respiratory difficulty. It develops in three stages: (1) transient distention of the alveoli during expiration, (2) permanent distention and (3) formation of alveolar blebs. X-ray examination in the first stage shows a clear shadow of a pulmonary lobe, which remains clearer than the shadow of the rest of the lung in expiration. In the second stage the clear shadow occupies either a lobe or an entire lung. The shadow remains unchanged during expiration and inspiration. X-ray examination in the third stage shows permanent emphysematous blebs, pseudocysts and giant emphysema. Early clinical examination, roentgenoscopy and bronchoscopy are indicated. The disease may be controlled if the causal factor is removed early or it may develop into lobular or pulmonary emphysema or giant emphysema in uncontrollable bronchopulmonary tumors and bronchial cancer.

Book Notices

Surgery of the Spinal Column. By Col. Fred H. Albee, M. R. C., U. S. Army, M.D., Sc.D., Earl J. Powers, A.B., M.D., and Lieut. Col. Harold C. McDowell, M.D., M. C., A. U. S. Fabrikoid. Price, $8. Pp. 460, with 229 illustrations. Philadelphia: F. A. Davis Company, 1945.

This work is intended to be a source book on spinal surgery. The authors were motivated by the frequency of spinal injuries incident to civilian life, and the casualties of war. Following a short but interesting chapter on the history of spinal surgery there is a chapter on surgical armamentarium which explains the use of Albee's motor driven instruments and extols the virtues of the Albee-Comper table. Then follow chapters on spinal anatomy, laminectomy, fractures, dislocations, tuberculosis, static deformities, congenital deformities and anomalies, low back disabilities, osteomyelitis, spondylitis, tumors and miscellaneous disorders of the spine. The subjects are covered in a somewhat cursory manner. The section on gunshot and stab wounds of the spine is allotted about thirty-six lines. Albee's recommendation of early spinal fusion in cases of tuberculosis at any age and his advocacy of spine fusions as a primary treatment for fractures of the thoracic and lumbar vertebrae are presented. Dr. Albee's pet thesis that myofascitis is the most important cause of backache is also discussed at length. Albee's methods of bone grafting as applied to various conditions requiring spine fusion are emphasized throughout the book. On page 262 sciatica and locomotor ataxia are listed in the etiology of kyphosis of infancy and early childhood. In general one would not be inclined to consider this work to be a source book on spinal surgery. The coverage of each subject is neither sufficiently broad nor detailed. The subject matter is easily understood, unfortunately at the expense of detailed discussion which one would expect to find in a work of specialized scope. It is a detailed review of Albee's views and methods in spinal surgery. One would not be inclined to recommend this book to the general practitioner. The student of orthopedic surgery might find it too highly specialized. Much of the material is to be found in Albee's older works: Orthopedic and Reconstruction Surgery and Bone Graft Surgery in Disease, Injury and Deformity, Campbell's Text Book of Orthopedic Surgery, Elsberg's Surgical Diseases of the Spinal Cord and the writings of Hodges, Phemister and Brunschwig, Frazier and others. The book has a large assortment of the poorest illustrations that have been submitted to the medical profession in many years. The best illustrations are borrowed.

Psychology of Sex Relations. By Theodor Reik. Cloth. Price, $3. Pp. 243. New York & Toronto: Farrar & Rinehart, Inc., 1945.

This book has as its central thesis the difference between sex and love. The author is a distinguished psychologist who was one of Freud's early students and who has made many important sociopsychologic contributions. "Ritual" and "The Unknown Murderer" are perhaps two of his books which are best known in the United States. His knowledge of Freud and psychoanalysis cannot be questioned. However, his understanding of the developmental history of psychoanalysis in the past forty years seems to be strangely antiquated. He ignores the development of ego psychology, which has occupied psychoanalysts in the past twenty-five years. He terms his revaluation and revision of Freud's theories "neopsychoanalysis." With many of Reik's formulations psychoanalysts would have no quarrel. He seems in the book to be setting up a straw man in order to demolish him. Reik believes that the capacity to love, which shows itself in affectionate tenderness and consideration, does not arise from the sexual urge. Neither is it a sublimation of sexual desire, which he believes is as incapable of sublimation as are pangs of hunger. He presents some interesting speculations on the genesis of love and tenderness. In his overemphasis on his discovery of love, Reik seems somewhat naive. The book is easy to read, except for repetitiousness in the first hundred pages. The general public has often misinterpreted psychoanalysis much as Reik does. The enlightenment which the author has experienced may be helpful to many readers.

Pulmonary Tuberculosis: A Handbook for Students and Practitioners. By R. Y. Keers, M.D., F.R.F.P.S., Senior Physician and Medical Superintendent, Tor-na-Dee Sanatorium, Murtle, Aberdeenshire, and B. G. Rigden, M.R.C.S., L.R.C.P., First Assistant Medical Officer, Tor-na-Dee Sanatorium. With a foreword by F. H. Young, O.B.E., M.D., F.R.C.P., Physician, Brompton Hospital for Consumption and Diseases of the Chest, London. Cloth. Price, $5. Pp. 273, with 124 illustrations. Baltimore: William Wood & Company, 1945.

The authors have grasped the modern trend in teaching tuberculosis in this work, which they describe in the preface as a handbook. The pages are packed with practical instructions. The subject matter is presented in such an interesting manner as to avoid dry repetition and to stimulate interest in diseases of the chest. Here, according to the preface, "the practitioner may obtain an outline of present day therapeutic measures which will enable him to advise and reassure." Emphasis is placed on the fundamental conceptions that pulmonary tuberculosis is a generalized disease which becomes localized in the lungs and that treatment must be directed at the tuberculosis patient, not just the tuberculous lung. The fifteen chapters with numerous illustrations, mostly reproductions of significant x-ray films, follow the usual routine of presentation of this subject—history, bacteriology, pathology, epidemiology, symptomatology, examination, radiology, differential diagnosis, prognosis, treatment, after-care and tuberculosis as a national problem. This concluding chapter is one which might well be read and reread by all persons interested in public health and welfare. It likewise reflects the up to the minute attitude of the authors toward the tuberculosis problem. In several places there are references to practices and conditions which exist in England and do not enter the problem in America. These are of minor importance and do not detract in the least from the value of the volume. This book, covering the disease briefly yet concisely, might well become an outline for teaching tuberculosis today. From it and with it undergraduate and graduate students and practitioners interested in "refresher" studies may readily obtain a practical working knowledge of the modern management of tuberculosis patients both from the physical and from the psychologic (psychosomatic) aspect.

The Medical Use of Sulphonamides. By Various Authors. (Edited by F. Hawking and F. H. K. Green.) Medical Research Council War Memorandum No. 10. Second edition. Paper. Price, 1s. 3d. Pp. 71. London: His Majesty's Stationery Office, 1945.

As the authors state in the introduction, it was thought desirable to prepare a concise review of the clinical indications for some of the principal sulfonamide drugs in the light of their current or potential availability in Great Britain. Since the appearance of the first edition in 1943 rapid advancements have been made in this field of therapy, and a concise and authoritative revision, such as the present revision reflects, is highly desirable. This compact work reviews the chemistry, pharmacology and general principles of sulfonamide therapy. In addition there is a discussion of the relationship of sulfonamide therapy to penicillin. Treatment of various infectious diseases are detailed, and the limitations of this type of therapy are stressed. Pertinent references to the extensive literature on the subject are interspersed throughout the text. Although American clinicians will not be in complete agreement with some of the statements, particularly with reference to the topical use of the sulfonamides and their prophylactic and therapeutic applications in burns and wounds, this memorandum represents an excellent presentation of the subject. It should be of considerable aid to practitioners who in the busy years of war have not been able to keep up with newer developments.

Willis Rodney Whitney: Pioneer of Industrial Research. By John T. Broderick. With foreword by Dr. Karl T. Compton. Cloth. Price, $3. Pp. 324, with 7 illustrations. Albany, N. Y.: Fort Orange Press, Inc., 1945.

Those who are interested in research will enjoy this biography. Others who are interested in people and their lives will also enjoy the book, as it reveals the life of a man responsible for many advances in the electrical field. It is well written, interesting and provocative; no one with a curious mind can read such a book without wondering about research, past accomplishments, future possibilities and the supply of such men as Willis R. Whitney, who, as director of the Research Laboratory of the

General Electric Company, tore apart veil after veil of secrecy in electricity and came forth with scientific facts for the betterment of mankind. One can now better understand why Floyd Gibbons had so much reason to call this laboratory the House of Magic; the man primarily responsible for the activities in the laboratory had an innate and unsatisfiable curiosity and was never happy unless he was doing something to feed this curiosity. He, as they say, did things, and the reasons are well revealed in his biography and should be a source of encouragement to other would-be scientists who in moments of stress wonder if the struggle is worth while. It is, and the life of Whitney serves as a good example.

Adult Adjustment of Foster Children of Alcoholic and Psychotic Parentage and the Influence of the Foster Home. By Anne Roe, Ph.D., and Barbara Burks, Ph.D., with a chapter on Sibling Adjustment in collaboration with Bela Mittelmann, M.D. Memoirs of the Section on Alcohol Studies, Yale University, No. 3. Paper. Price, $2. Pp. 164. New Haven: Quarterly Journal of Studies on Alcohol, 1945.

This excellent study touches on a matter of primary importance in medical psychology: "The problem of the relative influence of heredity and environment on the course and outcome of human lives." It is, in essence, a sociopsychologic, statistical survey which has a bearing on matters often—and without foundation—regarded as foreign to medical science. The adjustment of the child who has been handicapped not by tangible, immediately observable and frequently organic limitations but of the one who is impeded by the imponderable and abstract features of living is an extremely significant avenue for research. When it is considered that the authors of this study had to channel new avenues toward their goal and to work with specially fashioned and self-admittedly inadequate tools, one is pleased and surprised with the results as regards both the matters at hand and the directions implied. The single criticism applies to the bibliography, which is lacking in background material for work of this kind and constitutes an impediment to the project if it betrays or gives clues to the orientation of the authors. At the same time, however, this kind of study is regarded as pioneering, and it deserves a better hearing than it probably will get.

Materia Medica, Therapeutics and Pharmacy: Description of Drugs, Therapeutics, Practical Pharmacy, Metrology, Pharmaceutical Arithmetic, Prescription Writing in Apothecary and Metric System, Narcotic Drugs, Sulfa Group of Drugs, Penicillin, Special Therapeutics, Older Drugs, Tables for Reference, Urinalysis, Technic of Urinalysis, Poisons and Antidotes, Dosage Rules, etc., as a Text Book for Students in Colleges of Chiropody and as a Reference Book for the Chiropodist. By Howard T. Kearney, Ph.G., R.Ph., D.S.C., Professor of Materia Medica, Therapeutics and Pharmacy, Illinois College of Chiropody and Foot Surgery, Chicago. Cloth. Price, $6. Pp. 494. Chicago: Chiropody Record Publishing Company, 1945.

This volume, which is intended only for students and practitioners in the field of chiropody, is divided into four principal parts devoted to materia medica, therapeutics, pharmacy and prescription writing. Included in these sections are chapters and discussions on the history, classification, preparation, administration, uses and actions of drugs, incompatibilities, equivalent measures and weights, toxicology, narcotics, insulin, blood plasma, vitamins, general and local anesthesia, kidney functions, urinalysis and other laboratory tests. There is also an alphabetical list of drugs and illustrative material on prescription writing. It is readily apparent that much of the material in this book is outside the scope of chiropodial practice and can be of little practical value to students in this field. Other parts may serve as reference, but the book as a whole is not of textbook caliber in its present form.

Fires in Hospitals and Institutions. Paper. Price, 50 cents. Pp. 48, with illustrations. Boston: National Fire Protection Association, 1945.

Although a fire under any circumstances is likely to be costly and disastrous, a fire in a hospital or a home for the aged, the infirm or the orphaned has added hazards and menacing aspects which make it even more catastrophic. In this pamphlet are collected the records of a number of such fires, among the worst the tragedy of the burning of the Crile Clinic in 1929 and of the Evansville State Hospital for the Insane in 1943. There are several pages of records of other fires in hospitals, convalescent homes and homes for the aged which indicate their seriousness. Most of the fires began in service rooms of the buildings, indeed more than half of them in closets, laundries, elevator shafts, boiler rooms, work shops or linen rooms. Most of the losses could have been avoided with proper use of automatic sprinklers and adequate attention to making the building safe against fire. Two pages on planning for fire safety contain invaluable lessons for every superintendent of a hospital or medical institution.

The Great Stewardship: A Story of Life Insurance. By Albert W. Atwood. Cloth. Price, $2.50. Pp. 201. New York & London: Harper & Brothers, 1945.

In the decade that started in 1843 fifteen life insurance companies were founded which are still leaders in their field. Today there are 70,000,000 policyholders in the United States, and the insurance in force amounts to 148 billions of dollars. This book tells the story of the origin and growth of life insurance. A special chapter on health and longevity is of particular interest to the physician. The author is convinced that private management and competition have been largely responsible for the magnificent growth of the life insurance system, but he recognizes also the part played by government regulations and supervision. The final chapter is entitled "Social Insurance Plus Life Insurance." Mr. Atwood feels "there should be no conflict between social security and life insurance, or any other types of security that come from the exercise of personal industry and thrift, unless the benefits offered by social security are so large and attractive in themselves that many people will not make additional provision." He says that "the 'will to work' will be weakened and destroyed if social security benefits become confused with what men can do for themselves."

Conditioning Exercises for Girls and Women. By Anne Schley Duggan, Director the Department of Health, Physical Education and Recreation at the Texas State College for Women, Denton, Texas, Mary Ella Montague and Abbie Rutledge. Cloth. Price, $2.50. Pp. 116, with illustrations and music. New York: A. S. Barnes and Company, 1945.

This book serves as a convenient guide to the woman teacher of physical education who wishes to use systematic exercise as a method for improving the physical condition of girls and women. The objectives of conditioning exercises and their place in the total program of physical education for women are discussed. The suggested exercises are carefully analyzed in terms of kinesiology, physiology and effects specific to each part of the body. The clear and precise directions for teaching each exercise will be of help to the beginning or inexperienced teacher. The chief value of the book, however, lies in the fact that it has been written for women with direct reference to their needs and abilities. The methods described depart from the rigid technics of the older systems of formal exercise, which were designed primarily for men and boys, and by an adaptation of many technics of the modern dance a series of exercises are devised which, though strenuous, are primarily feminine in character. Excellent illustrations accompany the text, and scores for the musical accompaniment are provided in an appendix.

Vitamins and Hormones: Advances in Research and Applications. Edited by Robert S. Harris, Associate Professor of Nutritional Biochemistry, Massachusetts Institute of Technology, Cambridge, Mass., and Kenneth V. Thimann, Associate Professor of Plant Physiology, Harvard University, Cambridge, Mass. Volume III. Cloth. Price, $6.50. Pp. 420, with illustrations. New York: Academic Press, Inc., 1945.

The third volume of this series on vitamins and hormones includes contributions from fourteen individuals in England, the United States and Palestine. These research workers report on the interrelation of vitamins, the synthesis of B vitamins by intestinal bacteria, sulfonamides and vitamin deficiencies, manifestations of antepartum nutritional deficiency, growth factors in microbiology, synthetic estrogens, chemistry of anti-pernicious anemia substances of liver, action and metabolism of gonadotropic hormones and the role of acetylcholine in the mechanism of nerve activity. Those who want a monograph on advances in research and applications of vitamins and hormones will find this volume a useful reference source. Of course the advanced worker will obtain greatest value, but any one interested in hormones and vitamins would read this book with profit. It is the type of monograph for which there is much need and of which there should be more in other fields.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HEIGHT AND WEIGHT AS AFFECTED BY GENERATION AND AGE OF MOTHER

To the Editor:—Are children born of women in older ages as strong or as tall as children born in youth? Is the stature of our people growing taller or shorter, or does it stay about the same?

C. Raimer Smith, M.D., Decatur, Ill.

ANSWER.—The first part of the question is difficult to answer, for not much information is available. Waaler, basing his studies on Norwegian children, states that there is no biogenetic reason for child growth to suffer when correlated with the parity of the child and the age of the mother. If there is any growth deterioration it is socioeconomic, owing to the fact that in the lower income groups later children often add to the financial burden to the point where their health and dietetic care suffer.

We are growing taller and heavier. It has been said that in the last four generations the gain has been 1 inch (2.5 cm.) and 5 to 7 pounds (2.3 to 3.2 Kg.) per generation. Here are some figures for the United States:

	Height	Weight
Harvard fathers	173.95 cm.	140.24 pounds
Harvard sons	177.50 cm.	150.30 pounds
American college youths, 1916-1917	67.15 inches	132.05 pounds
American college youths, 1935-1936	69.23 inches	141.79 pounds
American college girls, 1916-1917	62.93 inches	119.00 pounds
American college girls, 1935-1936	63.72 inches	120.88 pounds

These figures show consistent gains in height and weight, save in female weight. Here the lack of gain probably is due to "dieting."

MULTIPLE SCLEROSIS

To the Editor:—What is there new in the treatment of multiple sclerosis?

Morris B. Schwartzfarb, M.D., Bronx, New York.

ANSWER.—Based on Putnam's venous occlusion theory, at least in regard to the assumption that a faulty blood clotting mechanism precipitates venous occlusion in multiple sclerosis, the prothrombin and coagulation times have been estimated in 28 untreated cases (Reese, H. H.: Multiple Sclerosis and Dicumarol Therapy, *Tr. Am. Neurol. A.* **70**:78, 1944). The coagulation time was normal, but an apparent hypoprothrombinemia was found in most of the cases. The use of the anticoagulant dicumarol for three to five days weekly in dosages of 1.5 to 3 mg. per kilogram was without any observable benefits. The results seemed to contradict Putnam's venous occlusion theory. A similar result has also been reported (Moore, M. T.: *Tr. Am. Neurol. A.* **70**:81, 1944).

The use of another anticoagulant, heparin, which prolongs coagulation time by neutralizing the circulating prothrombin and also inhibits platelet agglutination, requires frequent or continuous intravenous administration and is therefore expensive. No claim of cure can be made for it. The use of desensitizing allergens is also under clinical investigation. The effect of a warm climate is said to be favorable (Freeman, Walter: *M. Ann. District of Columbia* **13**:1 [Jan.] 1944; **13**:58 [Feb.] 1944). Fever therapy, either by typhoid vaccine intravenously or by malaria, has not yielded good results and the use of liver extracts and large doses of thiamine have not prevented relapses. There may be some indication, however, that vitamin therapy may reduce the severity of a relapse, but at the present time no conclusive statement is justified. Quinine has also been used extensively in the treatment of multiple sclerosis, but its value remains unproved. "Deleading" patients and the removal of other "toxic" metals has proved futile.

Freeman and most other neurologists agree that prolonged rest is the best form of treatment for the acute stage of multiple sclerosis, and a warm climate and freedom from upper respiratory infections may be the best insurance against a recrudescence. As no specific remedy is known, the patient must depend on his own immunity mechanisms to hold the disease in check. The building up of this resistance by rest and freedom from other illness is the only fully recognized form of treatment of multiple sclerosis at the present time.

Another drug used in the treatment of multiple sclerosis is histamine, a powerful dilator of capillaries. Histamine diphosphate in a 1:250,000 dilution is given by the drip method. The reports are somewhat encouraging, and in some instances prompt improvement has been noted (Horton, B. T.; Wagener, H. P.; Aita, J. A., and Woltman, H. W.: Treatment of Multiple Sclerosis by the Intravenous Administration of Histamine, THE JOURNAL, March 18, 1944, p. 800). The procedure appears safe, as pulse and blood pressure are not affected by repeated injections (Benson, A. J., and Horton, B. T.: *Proc. Staff Meet., Mayo Clin.* **20**:113 [April 18] 1945).

No form of treatment can be expected to grow axons back again after they have been destroyed. The lesions of multiple sclerosis go through an acute stage and then become chronic. Practically all the damage is done during the acute stage. The aim of treatment should be to preserve the patient from subsequent relapses. Almost all patients show spontaneous improvement and, if given at the appropriate time, any form of treatment may encourage a patient temporarily. Investigators in general are extremely skeptical of reported improvement from any form of treatment. The aim of treatment should be to prevent relapses, not in an expectation that myelin will be regenerated or a glial scar dissolved (Putnam, T. J.: *Tr. Am. Neurol. A.* **70**:82, 1944).

DRUGS AND PSYCHOLOGY AS COERCIVE DEVICES

To the Editor:—Is there any definite proof of the use of drugs or of psychologic methods to make jailed persons sign statements detrimental to them?

M.D., Colorado.

[This question has been referred to two qualified consultants, whose respective replies follow.—EDITOR.]

ANSWER.—There is no definite evidence that drugs have been used to force individuals to self-destructive acts or statements. The experience with so-called truth serums (which include scopolamine and intravenous barbiturates such as amytal and pentothal) is that the subject tells of true experiences or of fantasies which he has had. Even under hypnosis it is impossible to make a person perform acts which are not condoned by his own conscience. However, it is quite likely that drugs, with or without hypnosis, would be effective in causing a man to sign his name to a statement.

Proof is lacking that the use of any drug or any other method is used to make persons in police custody sign incriminating statements. In this country certain drugs such as scopolamine and sodium amytal have been used for interrogation purposes, but the effects of these drugs are such that it is not believed a signature could be obtained from the subject which would in any way resemble his ordinary style of writing. The possibility raised by the question must be discounted if for no other reason than the practical one that suspected persons could be coerced without the use of any drug into signing statements in their normal handwriting. In other words, any agency desirous of obtaining a signed statement from an unwilling subject would not find it worth the trouble and effort to use drugs for that purpose. However, certain drugs have been used by investigators for interrogation purposes. Abuse of such methods, that is, the use of the drug on an innocent person for the purpose of obtaining an incriminating statement, is rare if existent at all.

CHLOASMA

To the Editor:—A patient has chloasma. I should like to know whether anything new has been discovered to overcome or control the pigmentation of the skin.

F. G. Krum, M.D., Hamburg, Pa.

ANSWER.—The pigmentation occurring in chloasma is somehow related to the ovary, or perhaps it should be stated that it is not uncommon during pregnancy. In addition, some relationship to vitamin C was described by Cornbleet a few years ago. Not all cases have responded to large doses of vitamin C, but it is worth trying out. Ovarian preparations, either natural or synthetic, have not been particularly satisfactory. Neither is external therapy satisfactory.

VITAMIN K FOR ALLERGY

To the Editor:—Have you any information regarding the use of vitamin K in urticaria?

M.D., New York.

ANSWER.—Recently J. H. Black has reported (*J. Allergy* **16**:83 [March] 1945) gratifying results with the use of 6 mg. of vitamin K daily in the treatment of chronic urticaria and angioneurotic edema. Of these who failed to obtain relief by the usual methods, 62 per cent were relieved by vitamin K therapy. The duration of treatment varied from one to four weeks. Other workers have failed to obtain results comparable to those of Dr. Black.

REACTIONS FOR SYPHILIS FOLLOWING MALARIA AND DENGUE

To the Editor:—Many veterans are being examined who have positive serologic tests for syphilis but no history or physical evidence of the disease. A large percentage of these men have had recurring malarial paroxysms. Occasionally recent infections such as dengue fever or chancroid or a recent vaccination against typhoid are reported. What are the most reliable procedures for diagnosis in such cases? What relation does reagin titer bear to true and false positivity? What percentage of patients with asymptomatic chronic malaria have false positive serologic reactions for syphilis? In patients with chronic malaria not having paroxysms, how often are the malarial parasites demonstrable by the thick smear method? Is it advisable to employ routinely the heterophile agglutination test for infectious mononucleosis in these cases? Is there any record of patients with dengue fever yielding false positive reactions for syphilis? Does typhoid vaccination ever yield similar reactions? If so, for how long and what percentage?

Arthur A. Rodriquez, M.D., South Charleston, W. Va.

Answer.—The problem raised is one of major importance. At separation centers somewhere between 1.5 and 3 per cent of separatees are discovered to have positive blood serologic reactions for syphilis previously unrecorded. As suggested in the inquiry, a considerable number of those with positive serologic reactions have had malaria, recent vaccinia or other conditions which are known causes of biologic false positive serologic tests. It is highly desirable that the diagnosis of syphilis be not made in such instances on the basis of a single unsupported positive blood reaction but that the patient be carefully studied to rule out the possibility of false positivity. The differentiation of true from false positive serologic reactions is often a matter of extreme difficulty involving a complicated investigation of the patient and sometimes of his familial and sexual contacts. A suggested method of procedure is outlined in a paper by Moore, Eagle and Mohr, in the article Biologic False Positive Serologic Tests for Syphilis: III. A Suggested Method of Approach to Their Clinical Study (The Journal, Nov. 9, 1940, p. 1602). Of the several procedures suggested in this paper, one, the Kahn "verification" test, has now been demonstrated to be worthless, as are all other so far described "verification" tests.

To reply so far as possible to the other specific questions: By and large the reagin titer on the basis of quantitatively performed serologic tests is low in patients with false positive tests and high, or at least relatively higher, in patients with syphilis. There are, however, many exceptions to this statement, since an occasional patient with a biologic false positive reaction is found to have a high titer and many patients with long-standing syphilitic infection, whether or not previously treated, are found to have low titered tests. The major point of importance in differentiation between false and true positive tests is not the titer on a single occasion but instead the quantitative results on serially tested specimens, taken at intervals of several weeks and over a period of from three to six months. In the majority of patients with biologic false positive reactions the titer tends to fall or the test to become completely negative, whereas in syphilis the titer tends to remain fixed or, in the case of recent infections, to rise. There is no information as to the percentage of persons with chronic asymptomatic malaria who give false positive serologic tests for syphilis. Available information indicates that in most patients with acute episodes of malaria the blood serologic test may become positive during the febrile period only, the positive test disappearing within a few days or weeks thereafter. In chronic asymptomatic malaria the percentage success of demonstration of malaria parasites by the thick smear method depends entirely on the expertness of the examiner and may range from 0 to 50 per cent.

Since infectious mononucleosis is a frequent cause of biologic false positivity in serologic tests, and, since the disease in mild form is certainly widely prevalent, it is desirable to employ a heterophile agglutination test routinely for all patients suspected of biologic false positivity.

The question of false positive serologic reactions for syphilis in dengue fever has been referred to Lieut. Col. Charles R. Rein, M. C., Army Medical Center. He says "We have received about a dozen specimens from presumably nonsyphilitic individuals with a history of a recent episode of dengue. These specimens gave positive serologic reactions for syphilis. We were unable to follow the patients for a sufficient period of time, but some of them did revert to seronegativity in a short period. It was impossible to exclude malaria, infectious mononucleosis and other nonsyphilitic febrile diseases in these patients, so that I am not certain whether the positive serologic reactions were due to dengue or to something else."

It is believed that typhoid vaccine does not cause false positive serologic tests.

The most recent extensive review of the subject is Biologic False Positive Reactions to the Tests for Syphilis by Herman Beerman (*Am. J. M. Sc.* **209**:525 [April], **210**:524 [Oct.] 1945).

CODEINE IN HEAD INJURIES

To the Editor:—What are the contraindications to the use of codeine for the relief of pain in head injuries? Forrest C. Leiter, M.D., Chicago.

Answer.—The dangers from the use of codeine for the relief of pain with head injuries are relatively slight. Codeine, like morphine, is a central respiratory depressant, although to a considerably lesser degree. For that reason it should be used only for the relief of pain and not to reduce restlessness, which in fact it may aggravate. It should not be given to stuporous or semistuporous patients. It should not be administered in unusually large amounts or with unusual frequency. However, the combination of codeine to relieve pain and paraldehyde for extreme restlessness proves both safe and useful in many cases. Care must be taken not to confuse the increasing stupor produced by intracranial pathologic conditions with the sleep induced by such medication.

HEMANGIOMA OF SPINE

To the Editor:—I have a patient who has for four months suffered with what we used to call sciatica. Pain starts in the left hip and follows the nerve down the thigh to the calf of the leg. The condition was diagnosed by a competent man as hemangioma of the fourth lumbar vertebra. He recommended high voltage x-ray therapy, of which eight treatments have been given. The patient is improving gradually and has pain only from too much walking or standing. Pain stops immediately from sitting. What is the prognosis as to cure and liability to recurrence? May it become malignant? C. J. Lidikay, M.D., Kansas City, Kansas.

Answer.—If we take the diagnosis of hemangioma of the fourth lumbar vertebra to be correct, the chances are good that this patient will definitely receive relief from high voltage x-ray therapy. If his trouble continues and paraplegia should develop, a laminectomy would be necessary to decompress, as it were, the spinal canal, thus giving more room for the cord and the blood vessels. These hemangiomas are not truly malignant and it is rare indeed that they develop into a true malignant tumor.

ULTRAVIOLET LIGHT FOR AIR DISINFECTION

To the Editor:—I am taking care of a family of five in which there is almost uninterrupted infection of the upper respiratory tract, making the rounds with the start of the cold weather. Is an apparatus for treating the air with ultraviolet light of any real value in helping to cut down cross infections? If not, is there anything else on the market in the form of real value in helping to cut down cross infections? And, if not, is there anything else on the market in the form of a spray or some mechanical appliance that would be of any benefit in a case like this?

M.D., Massachusetts.

Answer.—Assurance cannot be given that any ultraviolet device or any spraying device, employing for example aerosols, will fully prevent recurrences of infections such as mentioned in the query. It is true that there are bacteria in the air and that ultraviolet rays of proper length and aerosol sprays, and perhaps other sprays properly used, may reduce the bacterial content of occupied spaces.

ELECTROCAUTERIZATION OF CERVIX AND CANCER

To the Editor:—Since deep burns are conducive to skin cancer, does it not follow that cervical electrocauterization, commonly practiced in the doctor's office, may be contributory to squamous cell cancer of the cervix?

S. L. Governale, M.D., Chicago.

Answer.—So far as is known, there is no evidence in the literature to indicate that electrocauterization of the cervix is a contributing factor in the causation of cancer of the cervix. On the contrary, it is generally believed that this measure is an effective prophylactic against cervical cancer.

WATERY CYSTS OF THE CONJUNCTIVA

To the Editor:—My previous letter on watery cysts of the conjunctiva appeared in The Journal Aug. 25, 1945, page 1260, and a comment in the October 13 issue, page 532. I have recently found a description of what I had in mind in Weeks, J. E.: Diseases of the Eye (Philadelphia, Lea & Febiger, 1910, p. 258): "This consists in dilatation of some of the lymph channels, usually of the ocular conjunctiva. It appears in small, slightly elevated, transparent vesicles, usually associated in chains, very superficially situated in the outer or inner half of the bulbar conjunctiva. The vesicles are irregular in shape and vary much in size, seldom exceeding a diameter of 3 millimeters. The vesicles may be readily moved over the underlying tissue. They sometimes produce irritation and are accompanied by congestion of the conjunctiva in which they lie but are not, as a rule, a source of pain. The vesicles are due to interference with the lymph stream by obstruction. Elderly individuals are more frequently affected than young individuals. Treatment: The vesicles may be excised, or they may be very satisfactorily destroyed by means of the fine galvanocautery point." F. P. Thompson, M.D., Chicago.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 130, No. 8 CHICAGO, ILLINOIS FEBRUARY 23, 1946

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THE SURGICAL TREATMENT OF ARTERIAL HYPERTENSION

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Since the first bilateral supradiaphragmatic splanchnicectomy and lower dorsal sympathetic ganglionectomy was performed by one of us (M. M. P.) in November 1933, more than 1,500 patients have received this surgical treatment for essential hypertension at the University Hospital as of September 1945. Surgical treatment has long been accepted here as an integral part of the therapeutic armamentarium for hypertensive disease. Its acceptance has been tempered with the realization that its limitations are definite, that its failures are not uncommon. Rarely does surgical treatment result in a cure of hypertensive disease, but it has given remarkable benefit and prolonged the life of many hypertensive patients.

Reports of the results of surgical treatment in hypertensive disease are numerous. For the most part they are concerned with small groups followed postoperatively for a relatively short time. The largest series of cases previously reported is that of Peet, Woods and Braden,[1] with results in 350 cases followed for nine months to seven years. The most recent evaluation of a significant series is Smithwick's[2] 156 patients followed one to five years.

Those familiar with the life course of hypertensive disease readily realize that much time must be allowed to elapse before passing judgment concerning the influence of a therapeutic incident on the life history of a chronic, constitutional disease. It is with this thought in mind that we present the results in 437 cases of essential hypertension treated surgically five to twelve years ago.

CLASSIFICATION OF HYPERTENSIVE PATIENTS

Essential hypertension is a disease complex with great individual variations. In evaluating the effect of surgical treatment on this variable constitutional disease it is advisable to classify patients according to definite categories in order to determine the *influence of the* operation on the individual category. In this way the knowledge gained may enable intelligent selection of candidates for surgical treatment. In this way one may learn what to expect from the operation for each clinical type of essential hypertension.

A classification based merely on the height of the blood pressure level or on the width of the pulse pressure fails to take into consideration the constitutional effects of the disease. The degree of elevation of blood pressure is not a sound prognostic criterion. In their study on a large group of persons with transient hypertension, Levy, White, Stroud and Hillman[3] found no significant differences apparent between the various systolic and diastolic levels in relation to the death rates with cardiovascular-renal disease. The relative height of a temporary rise in blood pressure did not appear to foretell the severity or extent of the lesions which eventually were the cause of death.

The classification of Keith, Wagener and Barker,[4] based primarily on the severity of the hypertensive changes in the ocular fundus, is sound, but it is not entirely applicable in evaluating surgical treatment, for both the patient with far advanced heart disease and the one with no cardiac involvement whatever may have angiospastic changes in the ocular fundi; 2 such cases should not be in the same category when one evaluates the effect of the operation on a category.

We have therefore classified the 437 cases in this series according to their general clinical profile, with the constitutional course of the disease forming the primary basis for classification:

Group 1. Early, mild hypertension. These patients were entirely asymptomatic, had normal or grade 1 fundi, and showed no evidence of cardiac, cerebral or renal involvement.

Group 2. Symptoms predominate. All patients in this group complained of symptoms and had abnormal fundi but displayed no evidences of cardiac, cerebral or renal impairment.

Group 3. Organic heart disease is predominant. In each case the diagnosis of heart disease was confirmed by either or both a definitely abnormal electrocardiogram and a teleoroentgenogram showing cardiac enlargement.

Group 4. Cerebrovascular disease is predominant. Each *patient in this group had one or more previous cerebral* accidents.

Group 5. Impaired renal function is predominant. Each patient showed diminished concentrating ability and urea clearance values.

Group 6. Malignant hypertension. These patients had severe neuroretinitis with definite papilledema of 1 diopter or more and displayed a rapidly progressive, downhill course.

From the Departments of Surgery and Internal Medicine, University of Michigan Medical School and University Hospital.

[1] Peet, M. M.; Woods, W. W., and Braden, S.: The Surgical Treatment of Hypertension: Results in 350 Consecutive Cases, J. A. M. A. **115**: 1875 (Nov. 30) 1940.

[2] Smithwick, R. H.: Surgical Treatment of Hypertension: Effect of Radical (Lumbodorsal) Splanchnicectomy on the Hypertensive State of 156 Patients Followed One to Five Years, Arch. Surg. **49**: 180 (Sept.) 1944.

[3] Levy, R. L.; White, P. D.; Stroud, W. D., and Hillman, C. C.: Transient Hypertension: The Relative Prognostic Importance of Various Systolic and Diastolic Levels, J. A. M. A. **128**: 1059 (Aug. 11) 1945.

[4] Keith, N. M.; Wagener, H. P., and Barker, N. W.: Some Different Types of Essential Hypertension: Their Course and Prognosis, Am. J. M. Sc. **197**: 332 (March) 1939.

METHOD OF STUDY

Each patient received an extensive preoperative workup. Detailed histories were taken and physical examinations performed in the departments both of medicine and of neurosurgery. Funduscopic examination through dilated pupils was done in the ophthalmology department. A teleoroentgenogram and electrocardiogram were obtained on each patient. Kidney function studies included the determinations of urea clearance, maximum concentrating ability and blood nonprotein nitrogen and urinalysis. Excretory pyelograms were done in a majority of the series; since 1939 this has been part of the routine preoperative procedure. The aim of the preoperative examinations is to rule out all specific causes of hypertension and to determine the constitutional extent of the hypertensive state in each case. Frequent blood pressure determinations were recorded in both arms with the patient sitting, standing and recumbent, and the readings were averaged.

Table 1.—*Sex Distribution*

	Number	Per Cent
Males	210	48
Females	227	52
Total cases	437	

Table 2.—*Age Distribution at Time of Operation*

Age	Number	Per Cent
10 to 19	6	1.4
20 to 29	33	7.6
30 to 39	120	27
40 to 49	208	48
50 to 59	69	15.8
63	1	0.2
Total cases	437	

Follow-up data were obtained largely through subsequent, periodic visits and reexamination as described. Of the 251 patients now living from the first 437 operated on and on whom we could obtain adequate postoperative data, 146 recently returned to the University Hospital for evaluation. Information on the remaining 105 living patients was obtained from both the patient and his home physician by letter. Information concerning the deceased patients was obtained from the referring physician and near relatives.

Table 3.—*Distribution of Preoperative Blood Pressure Levels*

Pressure in Mm. Hg	Number	Per Cent
270 plus 155 plus	52	12
240 to 269 140 to 154	119	27
210 to 239 125 to 139	151	34
180 to 209 110 to 124	99	23.5
160 to 179 95 to 109	16	3.6
Total cases	437	

The technic of bilateral supradiaphragmatic splanchnicectomy and lower dorsal sympathetic ganglionectomy has been described in detail.[5]

PREOPERATIVE DATA

From November 1933 to December 1940, 578 hypertensive patients were operated on by various members of the neurosurgery staff. The same technic was employed in all cases and a large majority of the operations were done by the same surgeon (M. M. P.). No adequate follow-up data could be obtained for 120 of these patients, leaving a series of 437 studied.

Fifty-two per cent of the 437 patients were females (table 1).

Ninety-two per cent of the series were 30 years or more of age, with 48 per cent in the fifth decade. The youngest patient was 10 years of age and the oldest was 63 (table 2).

The blood pressure levels in these patients were very high. Twelve per cent had blood pressures of 270/155 or greater. Seventy-three per cent had blood pressures above 210/125 (table 3).

One hundred and twelve patients, or 26 per cent of the series, had malignant hypertension (table 4); this diagnosis was made only when severe neuroretinitis with 1 diopter or more of papilledema was present together with a rapid, downhill course. Thirty-five per cent of the patients, not including any with malignant hypertension, had organic heart disease, confirmed either by a teleoroentgenogram showing definite cardiac enlargement or an abnormal electrocardiogram or both. Fifty-three patients, or 12 per cent, had previous cerebral accidents. Forty-one patients, or 9 per cent, had impaired kidney function by urea clearance and maximum concentration tests. The figures for the last two groups do not include those patients who had previous cerebral accidents or impaired kidney function with malignant hypertension, for all cases of malignant hypertension are in a separate group.

Table 4.—*Preoperative Classification*

Group	Number	Per Cent
1. Asymptomatic and early	5	1
2. Symptomatic, with no complicating disease	72	17
3.	154	35
4.	53	12
5.	41	9
6. Malignant hypertension	112	26
Total cases	437	

It is apparent that the hypertensive state in 82 per cent of the patients in this series had already progressed to serious organic illness prior to operation.

POSTOPERATIVE RESULTS

Adequate postoperative information was obtained on 437 of the 578 consecutive patients operated on from November 1933 to December 1940. Two hundred and fifty-one patients, or 57.5 per cent, are living five to eleven years after operation. The operative mortality was 3.6 per cent (table 5).

Of the 186 patients who died subsequent to the operation, 91 had malignant hypertension (table 6). Thus 81 per cent of the preoperative group with malignant hypertension have not survived five to eleven years. Approximately one third of each of the preoperative groups with organic heart disease, cerebrovascular disease and impaired renal function are dead. All of the 5 patients with early, mild, asymptomatic hypertension are still living, and 95 per cent of the 72 patients in group 2 of our classification are alive five to eleven years after operation.

Our findings substantiate the long-known fact that hypertensive disease is of much more serious import in the male than in the female (table 7). One hundred and seventeen males died; these constitute 62 per cent of the total deaths and 56 per cent of the total number of males in the series. Only 30 per cent of the total number of females subsequently died.

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[5] Peet, M. M.: The Surgical Treatment of Hypertension, California Acad. Med. 5: 58, 1935-1936.

The age of the patient at the time of operation has no influence on survival. The distribution of deaths according to preoperative age is exactly comparable to the preoperative age distribution for the entire series (table 8). As has been pointed out before, it is the preoperative extent of constitutional involvement by hypertensive disease that influences length of postoperative survival.

EFFECT OF SURGICAL TREATMENT ON BLOOD PRESSURE LEVELS

The 251 patients living five to eleven years after operation have obtained and maintained significant blood pressure reductions (table 9). In 20.3 per cent blood pressure has been reduced to normal. The upper limits of normal blood pressure have been arbitrarily placed at 140/90 for ages up to 40 and at 150/95 for ages over 40. There has been definite reduction, but not to normal levels, of more than 80 mm. systolic and 25 mm. diastolic, in another 26 per cent of the living patients. Significant reduction, of more than 40 mm. systolic and 15 mm. diastolic, occurred in 35 per cent. Of the living patients 18.7 per cent showed either no significant change or increase in blood pressure.

TABLE 5.—*Postoperative Data*

	Number	Per Cent
Total cases with adequate postoperative information	437	
Total living 5 to 11 years after operation	251	57.5
Total deaths subsequent to operation	186	42.5
Operative mortality in 578 consecutive operations from November 1933 to December 1940	21	3.6

TABLE 6.—*Subsequent Deaths According to Preoperative Classification*

Group	Number	Per Cent of Total Deaths	Per Cent of Preoperative Group
1	0	0	0
2	4	2	5
3	59	32	38
4	19	10	36
5	13	7	32
6	91	49	81
Total	126		

This high percentage of good results among the living patients grantedly is enhanced by the fact that the poor results have been eliminated by death. Yet when all the deaths in the series are included, the effect of the operation on blood pressure levels still remains significantly effective. Of the entire series 46.7 per cent show significant reduction in blood pressure five or more years after operation. The latter computation suggests that all patients who died subsequent to surviving five postoperative years manifested no beneficial effect on blood pressure levels after the fourth postoperative year. Actually this was not so. Thirty-two patients survived five years and subsequently died during their sixth to tenth postoperative years; several of these maintained significant reduction in blood pressure during the intervening years between operation and terminal illness. Nevertheless, in our statistical analyses these 32 cases are not segregated from the overall group of 186 deaths even though they were "five year survivals."

Of the 5 patients in group 1, with mild and asymptomatic hypertension, 4 have maintained normal blood pressure and 1 has maintained a definite reduction for five years and more (table 10). Of all patients in group 2 who had symptoms and fundus changes but no cardiac, cerebral or renal impairment, 77.2 per cent maintained normal, definitely reduced and significantly reduced blood pressure levels for five years and more. Similar blood pressure reductions were shown by 48 per cent of those with organic heart disease, 52.8 per cent with cerebrovascular disease and 58.4 per cent with renal impairment. Of the patients with preoperative malignant hypertension 16 per cent maintained significant blood pressure reductions for five years and more.

TABLE 7.—*Subsequent Deaths According to Sex*

	Number	Per Cent of Total Deaths	Per Cent of Total of Same Sex
Males	117	62	56
Females	69	38	30
Total deaths	186		

TABLE 8.—*Comparison of Preoperative Age Distribution and Distribution of Deaths According to Preoperative Age*

Peroperative Age	Preoperative Distribution		Distribution of Deaths	
	Number	Per Cent	Number	Per Cent
10 - 19	6	1.4	3	1.6
20 - 29	33	7.6	11	6
30 - 39	120	27	52	28
40 - 49	208	48	88	47
50 - 59	69	15.8	32	17.4
63	1	0.2	..	....
Total cases	437		186	

It is thus seen that the patient whose hypertensive state has not yet progressed to evident involvement of the heart, cerebral arteries or kidneys stands an excellent chance for prolonged blood pressure reduction from surgical treatment. Nevertheless a remarkable percentage of patients with organic heart disease, cerebrovascular disease and renal impairment have maintained significant blood pressure reductions for long periods of time.

TABLE 9.—*Effect of Surgical Treatment on Blood Pressures in 251 Patients Living Five to Eleven Years After Operation*

	Number of Cases According to Preoperative Classification						Per Cent of Living Patients		Per Cent of Total Series, Living and Dead	
	1	1	3	4	5	6				
Reduced to normal (140/90 for ages up to 40) (150/95 for ages over 40)	4	21	9	9	6	2	20.3	81.3	11.7	46.7
D [illegible]	1	17	28	6	6	7	26		15	
[illegible]	..	17	37	13	12	9	35		20	
No change	..	10	14	4	2	2	12.7			
Increased	..	3	7	2	2	1	6			
Total cases	5	68	95	34	28	21				

It may justifiably be assumed that, if a patient had significantly reduced blood pressure at an examination in the seventh or eleventh postoperative year, the reduction had been maintained over the entire postoperative period. Many of the patients in this series have returned to the University Hospital for periodic checkup examinations and for the previous surveys of this series; those who now have significant blood pressure reductions have repeatedly demonstrated this on previous examinations.

TABLE 10.—*Analysis of the Effect of Surgical Treatment on Blood Pressure Levels Five to Eleven Years After Operation in 437 Patients, Including 186 Deaths*

Blood Pressure	Preoperative Classification 1	2	3	4	5	6
Reduced to normal.......	80%	30%	6%	17%	14.6%	1.8%
Definite reduction........	20%	23.6%	18%	11.3%	14.6%	6.2%
Significant reduction.....	....	23.6%	24%	24.5%	29.2%	8%
Unchanged, increased, or subsequent death......	....	22.8%	52%	47.2%	41.6%	84%

TABLE 11.—*Effect of Surgical Treatment on Symptomatology During Interval Between Operation and Terminal Illness of 186 Deceased Patients*

Postoperative result	Number	Per Cent
Definite improvement....	41	22
Moderate improvement...	48	26
No relief....	54	29
No data....	43	23
Total cases....	186	

EFFECT OF SURGICAL TREATMENT ON HYPERTENSIVE SYMPTOMS

The beneficial effect of surgical treatment on hypertensive symptoms is an established and accepted result. This therapeutic measure must always be considered in the management of hypertensive patients with severe, incapacitating headaches, dizziness, fatigability, epistaxis, urinary frequency and nocturia, nausea and vomiting, or blurring of vision. For these symptoms bilateral supradiaphragmatic splanchnicectomy offers a definite opportunity for relief.

TABLE 12.—*Effect of Surgical Treatment on Symptomatology in 251 Patients Living Five to Eleven Years After Operation*

Preoperative Status	Total	Postoperative Result: Complete Relief	Definite Improvement	Moderate Improvement	Unchanged	Worse
No significant symptoms						
Number....	8	..	..	..	8	
Per cent....	..	..	..	..	(100%)	
Moderate symptoms						
Number....	67	14	30	14	5	4
Per cent....	..	(21%)	(44.5%)	(21%)	(7.5%)	(6%)
Severe, incapacitating symptoms						
Number....	176	47	81	36	7	5
Per cent....	..	(27%)	(46%)	(20%)	(4%)	(3%)
Total cases....	251					

Of 176 patients who had severe, incapacitating symptoms before operation, 27 per cent were maintaining complete relief five to eleven years later, another 46 per cent felt definitely improved and only 7 per cent were unchanged or worse (table 12). Of 67 patients who had moderate hypertensive symptoms preoperatively 21 per cent now were enjoying complete relief, another 65.5 per cent were definitely or moderately improved and 13.5 per cent were unchanged or worse.

The foregoing statistics do not include the 186 deceased patients in the series. Information obtained from referring physicians and near relatives shows that 22 per cent of the 186 dead obtained definite symptomatic relief during the interval between operation and terminal illness (table 11), 26 per cent obtained moderate relief and 29 per cent no relief. No data were obtained on the remaining 23 per cent.

It is apparent that patients who live a long time after the operation continue to obtain symptomatic benefit during all that time. Relief from the distressing symptom of hypertensive headache is most striking. To observe the previously incapacitated patient return to gainful occupation several months after the operation and still continue at full time work five to eleven years later is most gratifying.

EFFECT OF SURGICAL TREATMENT ON EYEGROUNDS

Of the 251 living patients in the series, only 146 received a recent funduscopic examination five to eleven years postoperatively (table 13). Eleven had normal fundi preoperatively, and all 11 retained this status over the long postoperative period. Thirty patients showed sclerotic changes only of the retinal arterioles, and 83.3 per cent of these remained unchanged while 10 per cent progressed to worse changes. Of the 88 patients who had angiospastic retinitis with or without sclerosis and with or without hemorrhages and exudates preoperatively, 82 per cent were improved in that localized vasospasms had disappeared and no new hemorrhages or exudates had occurred; 17 per cent of these 88 patients remained unchanged and 1 was worse.

TABLE 13.—*Effect of Surgical Treatment on Eyegrounds of 146 Patients Living Five to Eleven Years After Operation*

Preoperative Status	Cases	Postoperative Result: Improved	Unchanged	Worse
1. Normal fundi....	11	....	11 (100%)	....
2. Sclerosis only....	30	2 (6.7%)	25 (83.3%)	3 (10%)
3. Angiospastic retinitis, with or without hemorrhages and exudates....	88	72 (82%)	15 (17%)	1 (1%)
4. Papilledema	17	17 (100%)		
Total cases....	146			

Twenty-one of 112 preoperative patients with malignant hypertension with severe neuroretinitis and 1 diopter or more of papilledema are still living five to eleven years after operation and 17 received recent funduscopic examination. In all these 17 patients the papilledema had disappeared.

This evaluation of the influence of splanchnicectomy on the ocular fundi in hypertension does not include the 186 deceased patients of the series. Thus from the foregoing statistics one must come to no further conclusion than that among the patients living five to eleven years after operation a remarkably high percentage of those who had had angiospastic retinitis, hemorrhages, exudates or papilledema have maintained funduscopic improvement over the long postoperative period. Greatest improvement occurred in those with preoperative angiospastic retinitis, for it is common for localized vasospasm to disappear postoperatively. On the other hand, sclerosis of the retinal arterioles is a permanent change; the effect of splanchnicectomy in these cases is to limit further progression for all but a small percentage.

EFFECT OF SURGICAL TREATMENT ON THE HEART IN HYPERTENSION

Of the living patients 141 had recent electrocardiograms taken (table 14). Of the 84 patients whose electrocardiograms were normal preoperatively 93 per cent maintained an unchanged, normal electrocardiogram five to eleven years after operation; in only 7 per cent did the electrocardiogram become abnormal. Of the 57 patients who had abnormal preoperative electrocardiograms 52.7 per cent showed significant improvement five to eleven years later, consisting of significant left axis deviation returning to normal or of previously inverted T waves in leads 1 or 2 returning to normal. Of the abnormal electrocardiograms 42 per cent showed no significant change, while 5.3 per cent progressed to worse changes.

Of 80 living patients with normal heart size preoperatively, 91.2 per cent maintained normal heart size by comparative teleoroentgenograms five to eleven years later; 7 patients, or 8.8 per cent, had significant increase in heart size (table 15). Forty-eight living patients had preoperative cardiac enlargement of 18 per cent or more above the predicted normal area. Twenty-five, or 52 per cent, of these patients with enlarged hearts showed significant reduction in heart size. Sixteen of these 25 had had slight cardiac enlargement of 18 to 30 per cent above predicted normal area, and in each instance the teleoroentgenogram five to eleven years after operation showed no cardiac enlargement; the remaining 9 patients had had moderate cardiac enlargement of 30 to 75 per cent above the predicted normal area preoperatively, and each showed significant reduction in size to only slight cardiac enlargement. Only 4.2 per cent of the living patients with preoperative cardiac enlargement now show further increase in heart size.

TABLE 14.—*Effect of Surgical Treatment on the Electrocardiogram in 141 Living Patients Five to Eleven Years After Operation*

		Postoperative Status		
Preoperative Status	Cases	Significantly Improved	No Significant Change	Worse
Normal electrocardiogram.......	84	....	78 (93%)	6 (7%)
Abnormal electrocardiogram....	57	30 (52.7%)	24 (42%)	3 (5.3%)
Total cases....................	141			

It is remarkable that, of the patients who had heart disease before operation and who are still alive, more than half maintain significant improvement in their electrocardiograms and significant decrease in heart size. But splanchnicectomy has not benefited such a great percentage of the entire group of 154 patients who had organic heart disease prior to operation. Thirty-eight per cent of this group were dead in 1945. In addition, many of the patients who had malignant hypertension subsequently died in congestive heart failure.

Splanchnicectomy has possibly prevented progression to organic heart disease in hypertensive patients who manifested no evidence of cardiac involvement preoperatively. Of 87 patients who did not have heart disease prior to operation, 79 still showed no evidence of heart disease five to eleven years later; only 9 per cent subsequently developed heart disease.

EFFECT OF SURGICAL TREATMENT ON CEREBROVASCULAR DISEASE

There are still living five to eleven years after operation 48 of a total of 73 patients who had had definite cerebral accidents prior to operation. Forty-three of the 48 have had no subsequent cerebral accidents during the long postoperative period. It thus appears that splanchnicectomy affords some protection against subsequent cerebral accidents in those hypertensive patients who have had this unfortunate complication.

TABLE 15.—*Effect of Surgical Treatment on Heart Size, Measured by Teleoroentgenogram, of 128 Living Patients Five to Eleven Years After Operation*

		Postoperative Result		
Preoperative Status	Cases	Significant Decrease in Heart Size	No Significant Change	Increase in Heart Size
Normal heart size................	80	....	73 (91.2%)	7 (8.8%)
Cardiac enlargement (18% or more above predicted normal area)........................	48	25 (52%)	21 (43.8%)	2 (4.2%)
Total cases....................	128			

Of the 437 patients in this series, 61 have died of cerebrovascular disease. Twenty-five of these deaths occurred in persons who had had preoperative cerebral accidents, and 13 of the 25 also were cases of malignant hypertension. Thirty-six deaths from cerebrovascular disease occurred of patients with no preoperative clinical evidence of such involvement, but 20 were cases of malignant hypertension.

EFFECT OF SURGICAL TREATMENT ON KIDNEY FUNCTION

An eighteen hour concentration test of kidney function[6] was performed recently on 117 of the living patients five to eleven years after operation. Sixty-two of these patients had normal kidney function before operation, and 51 of these have maintained normal concentrating ability for the long period of time since operation; 11 patients have manifested impaired concentrating power since operation (table 16).

Of 55 patients who had impaired kidney function prior to splanchnicectomy 20, or 36.4 per cent, have shown significant improvement in concentrating ability five to eleven years later; 52.6 per cent showed no change, and 11 per cent are worse.

TABLE 16.—*Effect of Surgical Treatment on Renal Concentrating Ability of 117 Patients Living Five to Eleven Years After Operation*

		Postoperative Result		
Preoperative Status	Cases	Significant Improvement	No Change	Worse
Normal function............	62	....	51 (82.3%)	11 (17.7%)
Impaired function..........	55	20 (36.4%)	29 (52.6%)	6 (11%)
Total cases.............	117			

It appears that a considerable percentage of patients with preoperative impaired kidney function have maintained significant improvement of kidney function during the long period of time since operation. Of the 186 deaths in the series, 21 were caused by uremia.

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6. Isberg, E. M., and Newburgh, L. H.: An Eighteen Hour Concentration Test of Kidney Function, Am. J. M. Sc., to be published.

EFFECT OF SURGICAL TREATMENT ON THE LIFE HISTORY OF ESSENTIAL HYPERTENSION

The ultimate test of the value of surgical treatment is whether it significantly alters the inevitable, progressive, fatal course pursued by the great percentage of cases of essential hypertension. Now that a series of surgically treated hypertensive patients has been followed for a long time, fair comparisons can be made with the several series of medically treated cases in the literature.

In Janeway's[7] series of 458 patients, one half of the males had died within four years and one half of the females within five years of the time of development of symptoms; by the tenth year half of the remainder had died. Hamman[8] had a mortality of 30 per cent at the end of five years and 78 per cent at the end of ten years.

King, Carlile and Blackford[9] followed 481 patients for ten to sixteen years, and the mortality was 73 per cent. In half of the cases in their series the discovery of hypertension was purely an incidental finding.

Five years ago Woods and Peet[10] compared 76 patients (included in the present report) who were then alive five to seven years after operation with the series of Keith, Wagener and Barker.[4] The present, larger group of 437 patients followed for a longer time compares just as favorably as the smaller group did five years ago. One hundred and forty-six, or 62 per cent, of the 219 patients in the Keith-Wagener-Barker series had malignant hypertension, while 112, or 26 per cent, of our 437 patients had malignant hypertension; theirs is a more seriously ill group. Only 19 patients, or 8.6 per cent, of their series were alive five to nine years after the first examination. Of our 437 patients 57.5 per cent are living five to eleven years after operation. Our survival rate thus also compares very favorably with that of Janeway, of Hamman and of King, Carlile and Blackford. At the end of five postoperative years, 64.8 per cent of our patients were living.

TABLE 17.—*Causes of Death Up to Eleven Years After Operation of 186 Surgically Treated Patients with Essential Hypertension*

	Number	Per Cent
Congestive heart failure	66	35.4
Cerebrovascular accident	61	32.8
Uremia	21	11.3
Coronary occlusion with myocardial infarction	16	8.6
Dissecting aneurysm of aorta	2	1.1
Causes other than hypertension	10	5.4
Cause unknown	10	5.4
Total cases	186	

It is in malignant hypertension that fair comparisons can be made between our present series and the Keith-Wagener-Barker series. Twenty-one patients, or 19 per cent, of our 112 with malignant hypertension treated surgically are alive five to eleven years after operation. Of the 146 patients with malignant hypertension in the Keith-Wagener-Barker control series 79 per cent were dead at the end of the first year, 88 per cent at the end of the second year, 94 per cent at the end of the third year, 98 per cent at the end of the fourth year and 99 per cent at the end of the fifth year. Only 1 patient with malignant hypertension in the control series survived five years.

Surprisingly, the cases of malignant hypertension in the surgically treated series of de Takáts, Heyer and Keeton[11] did not respond with any benefit. They, just as the Keith-Wagener-Barker control series, had a five year mortality of 99 per cent. They even list malignant hypertension as a contraindication to surgical treatment. Allen and Adson[12] also stated that malignant hypertension does not respond satisfactorily to surgical treatment. We have found that there is hope of prolonged survival for 19 per cent of the patients with malignant hypertension surgically treated. We firmly feel that no patient with malignant hypertension, otherwise suitable for operation, should be denied this 1 chance in 5 to prolonged life of more than five years, compared to the one chance in 146 offered by general medical management.

It appears from comparison of survival statistics that the life span of the hypertensive patient may be significantly lengthened by surgical treatment.

Fifty-one patients in this series have maintained blood pressure levels within normal limits for five to eleven years since operation; 28 show no evidence whatever of hypertensive disease at the present time. These 28 persons not only have maintained normal blood pressure levels, but also they are completely free from symptoms, their eyegrounds are either normal or show only sclerotic changes, and they manifest no evidence of cardiac, cerebral or renal involvement. These 28 persons could be termed "five year cures"; actually we have never made claims that essential hypertension could be cured by splanchnicectomy. The hypertensive predisposition always persists following surgical treatment, regardless of the fall of blood pressure to normal levels.

COMMENT

The foregoing information obtained from observing a large group of surgically treated hypertensive patients over a long period of time should enable more accurate identification of the patients who may obtain good results from operation. The postoperative data have been presented in a manner so that one may now know what to expect from splanchnicectomy in the individual case selected for operation.

Intelligent management of a case of essential hypertension requires a knowledge of the complete clinical profile of the patient. The workup of the patient must include in addition to the routine history and physical examination an ophthalmoscopic examination, electrocardiogram, teleoroentgenogram, excretory pyelogram and kidney function studies. The patient should be followed by checking on these various aspects of hypertensive disease from time to time. Then one may know whether or not the hypertensive state in a given case is progressive in nature. The patient whose hypertensive disease shows evidence of progression and activity is a candidate for surgical treatment.

It is well known that there is a group of persons who tolerate essential hypertension exceedingly well. They live out a normal life span without any symptoms or complicating accidents of hypertensive disease. Naturally, this group needs no active treatment.

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[9] King, R. L.; Carlile, T., and Blackford, J. M.: Hypertension: Follow-Up Study of 481 Cases, Northwest Med. **41:** 298 (Sept.) 1942.

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[11] de Takáts, G.; Heyer, H. E., and Keeton, R. W.: The Surgical Approach to Hypertension, J. A. M. A. **118:** 501 (Feb. 14) 1942.

[12] Allen, E. V., and Adson, A. W., cited by Wegener, H. P., and Keith, N. M.: Diffuse Arteriolar Disease with Hypertension and the Associated Retinal Lesions, Medicine **18:** 317 (Sept.) 1939.

When elevated blood pressure is discovered as an incidental finding, a complete hypertensive study of the patient is indicated. If the blood pressure is only moderately elevated and there are no symptoms, no fundus abnormality and no cardiac, cerebral or renal involvement, management of the patient by general medical measures and periodic examination is advisable. If evidence of progression is discovered—such as hypertensive symptoms, or angiospastic-retinal changes or cardiac, cerebral or renal involvement—the patient has become a candidate for surgical treatment. No form of medical therapy has yet been shown to be as efficacious as surgical treatment in arresting the pernicious, progressive character of hypertensive disease, promoting improvement and increasing life span.

It has been shown that hypertensive patients with symptoms and fundus changes, but no evidence of cardiac, cerebral or renal involvement—group 2 of our classification—may expect excellent results from surgical treatment. Ninety-five per cent of the patients in this category were living five to eleven years after operation; the five year survival rate was 98.6 per cent, for three of the four deaths in this group occurred subsequent to the fifth postoperative year. Three of the four deaths in this group were from causes other than hypertensive disease, and all 3 patients had maintained normal blood pressure levels until death occurred. One of the 3 deceased patients passed an army final-type physical examination and was commissioned; he maintained a normal blood pressure during two and one half years of rigorous infantry training, and he was killed by a German sniper while at his regimental command post on a Normandy beachhead. The second died of acute intestinal obstruction, and the third died of carcinoma of the testis with metastasis.

Thirty per cent of the patients in group 2 have maintained normal blood pressure levels, and another 47 per cent have maintained definite or significant reductions. Symptoms have been completely relieved or definitely improved and angiospastic-retinal changes have been improved in remarkably high percentages. Their normal electrocardiograms, heart size and kidney function have been adequately protected.

Approximately one third of all the patients who showed preoperative evidence of either organic heart disease, cerebrovascular disease or impaired kidney function did not survive five to eleven years. Evidence of involvement of any one of these vital organ systems is indicative of generalized vascular involvement. Hypertensive heart disease is not to be considered singularly; it is a part of a constitutional disease. Not all patients with hypertensive heart disease die in congestive failure; many die of a cerebrovascular accident and some in uremia. The patient who has had a cerebral accident may later die of a cardiac lesion.

Half of the patients in preoperative groups 3, 4 and 5 may expect significant blood pressure reductions maintained for at least five to eleven years. Their hypertensive symptoms—such as headache, dizziness, tinnitus, epistaxis, fatigability, weakness, nocturia, nervousness, irritability and blurring of vision—and retinal angiospasms are relieved in the same high percentages as in group 2. Of those who had abnormal electrocardiograms and cardiac enlargement before operation and are still living, more than half have maintained significant improvement of these objective aspects for five to eleven years.

Sixty per cent of patients who have suffered a cerebral accident may expect prolonged life with no subsequent cerebral accident after splanchnicectomy.

Nineteen per cent of the 112 patients with preoperative malignant hypertension are living five to eleven years later. Eighteen of these 21 living patients are maintaining significant reductions in blood pressure. Seventeen of these patients received funduscopic examinations, and papilledema had disappeared in all. In the survivors, symptomatic improvement has been remarkable. Splanchnicectomy offers hope for prolonged life to 1 out of every 5 patients with malignant hypertension.

Any patient who is under 60 years of age, who is not in congestive heart failure, whose blood nonprotein nitrogen level is below 45 mg. per hundred cubic centimeters and who has not sustained a major cerebral accident during the previous month may be considered as a reasonable operative risk.

The age of the patient at time of operation has no influence on postoperative survival. The extent of the hypertensive disease process is the important factor in survival.

SUMMARY

Four hundred and thirty-seven patients with essential hypertension have been followed since receiving the surgical treatment of bilateral supradiaphragmatic splanchnicectomy and lower dorsal ganglionectomy five to twelve years ago.

Two hundred and fifty-one patients, or 57.5 per cent of the series, are living five to eleven years after operation. At the end of five postoperative years 64.8 per cent of the entire series was alive. The hypertensive state in 82 per cent of the patients in this series had already progressed to serious organic disease prior to operation.

Fifty-six per cent of all the males have died, while the female mortality was only 30 per cent.

Ninety-five per cent of hypertensive patients who showed no preoperative evidence of cardiac, cerebrovascular or renal involvement are living five to eleven years after operation.

Approximately one third of all patients who manifested preoperative evidence of organic heart disease, cerebrovascular disease or impaired kidney function did not survive five to eleven years.

Nineteen per cent of 112 patients with preoperative malignant hypertension are living five to eleven years later.

Fifty-one patients have maintained normal blood pressure levels and 28 show no evidence whatever of hypertensive disease five to eleven years after operation.

Significant reductions in blood pressure, complete and definite symptomatic relief, improvement of eyegrounds and improvement of abnormal electrocardiograms, cardiac enlargement and kidney concentrating ability have been maintained for five to eleven postoperative years in a remarkable percentage of patients.

Sixty per cent of patients who had previous cerebral accidents suffered no recurrence during the long postoperative period.

Surgical treatment is a measure to be considered in the management of every case of essential hypertension, but to be utilized only when indicated. Evidence of progression and activity of hypertensive disease constitutes indication for surgical treatment.

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EFFECT OF FOLIC ACID ON PERSONS WITH MACROCYTIC ANEMIA IN RELAPSE

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That macrocytic anemia in relapse is promptly relieved by either the parenteral or the oral administration of synthetic folic acid was reported by Spies, Vilter, Koch and Caldwell[1] in November 1945. The following month Vilter, Spies and Koch[2] reported another series of cases in which these results were confirmed. At the same time Spies, López, Menéndez, Minnich and Koch[3] reported that the macrocytic anemia of tropical sprue found in Cuba responds in a similar manner.

The present report, which is a tentative evaluation of the status of folic acid as a therapeutic agent, is presented because of the large number of requests for information from physicians regarding the use of folic acid as a therapeutic agent. It has been disheartening to write to so many physicians that leukemia, aplastic anemia and some of the anemias of undetermined origin do not respond specifically to this substance.

The present communication is based on my observations of the effect of folic acid in anemia. These observations were made on patients in Birmingham, Ala., and in Havana, Cuba. All except 2 of the patients were studied in conjunction with one or more of the associates mentioned.

In selecting the cases, the following criteria were used: 1. The patient must have a macrocytic anemia with red blood cell counts of 2.5 million or less and a color index of over 1. 2. He must be untreated, or he must not have been treated recently enough to interfere in any way with our evaluation of the effect of folic acid. 3. He must not have any complicating disease which might be lethal during the course of the study. 4. The bone marrow must contain megaloblasts and have the typical erythroblastic arrest seen in macrocytic anemia. A fifth criterion used for the selection of any patient in Cuba, where we were studying sprue, was that he must have "fatty stools" and weight loss.

With these criteria in mind, we selected for special study a group of 45 patients. This group included 8 patients with so-called nutritional macrocytic anemia, 8 with pernicious anemia, 11 with sprue, 3 with anemia associated with pregnancy, 1 with anemia associated with carcinoma, 1 with anemia associated with chronic alcoholic addiction, cirrhosis of the liver and neuritis, 3 with anemia of undetermined origin, 3 with aplastic anemia, 3 with anemia associated with leukemia and 4 with iron deficiency anemia.

The diagnoses of the patients shown in the accompanying table were arrived at after intensive study by a number of physicians. The clinical separation of these various syndromes is somewhat arbitrary; but in view of the findings reported in this paper and in our previous publications on folic acid, the classification probably is not of as great importance as it has been considered in the past. As far as possible, the cases are classified arbitrarily in order to aid other investigators who may wish to study the effect of folic acid on similar patients.

Forty-one of the 45 patients had typical macrocytic hyperchromic anemia diagnosed on the basis of criteria used in the past in the Nutrition Clinic at Hillman Hospital.[4] The other 4 patients had iron deficiency anemia characterized by a low color index. A diagnosis of pernicious anemia was made only when there was no free hydrochloric acid, pepsinogen or rennin in the gastric juice after histamine stimulation. A diagnosis of sprue was made only in the presence of steatorrhea. If pregnancy was the only etiologic agent present, a diagnosis of macrocytic anemia of pregnancy was made. If the patient had a blood picture typical of macrocytic anemia and if there was free hydrochloric acid, pepsinogen and rennin in the gastric juice, a diagnosis of nutritional macrocytic anemia was made. In most instances there was complete agreement on the part of the physicians with regard to the clinical classification of these cases. The cases in which there was a difference of opinion were classified as indeterminate.

Pellagra, which was diagnosed only in the presence of characteristic tongue or dermal lesions, was present at the time folic acid therapy was initiated in 7 cases: 1 (case 3) of nutritional macrocytic anemia, 2 (cases 7 and 10) of pernicious anemia, 2 (cases 17 and 19) of sprue, 1 (case 21) classified as indeterminate and 1 (case 24) of macrocytic anemia of pregnancy. In 2 of the cases of pernicious anemia, neurologic alterations indicative of mild postolateral sclerosis were present. In the group of cases classified as nutritional macrocytic anemia, severe polyneuritis was present in 1 and mild peripheral neuritis in 2. In 2 of the cases of sprue there was also evidence of peripheral nerve involvement.

All except 4 of the patients were hospitalized for preliminary observations, base line determinations and treatment. Four of the patients who lived near the Nutrition Clinic in Birmingham were treated as ambulatory cases. They came to the clinic daily throughout the study. A detailed medical and dietary history was obtained and a careful physical examination was made in each case. During the control period and also during the period of most active regeneration, red and white cell counts, reticulocyte counts and hemoglobin determinations were made daily.[3] Thereafter these determinations were made at increased intervals. Bone marrow studies were also made in each case.

The diet of 35 of the 41 hospitalized patients was rigidly controlled during the whole period of study. Meat, meat products, fish and poultry were excluded, and only 1 quart of milk and one egg daily were allowed. Bread, cereals, sugar, fats and vegetables were permitted in any amount desired. In a previous study of anemia, 75 patients had been restricted to this diet, and not 1 of them had had a so-called spontaneous remission. We felt certain, therefore, that any hemopoietic response by the patients on folic acid therapy would be attributable to the folic acid rather than to the foods included in the diet. The other 6 hospitalized patients (the 3 with leukemia and the 3 with aplastic

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The folic acid for the study was supplied by Lederle Laboratories, Inc.

The expenses of this study were borne by grants from the Lederle Laboratories, Inc., and the Edward Mason Williams Fund.

University of Cincinnati Studies in Nutrition at Hillman Hospital, Birmingham, Alabama, and at the Calixto García Hospital, Havana, Cuba, in cooperation with the Institute of Nutrition of Cuba, the Coordination Committee for Cuba and the University of Havana.

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anemia) were given the usual hospital diet ad libitum. The 4 ambulatory patients ate their meals at home. However, because of financial limitations these 4 persons were unable to vary their diets to any extent from day to day and, according to their dietary histories, the food they ate at home was similar to that eaten by the patients on the controlled diet. As soon as the studies were completed, each patient was advised to eat a liberal, well balanced diet including lean meat, eggs and milk.

Effect of Folic Acid on Peripheral Blood in Macrocytic Anemia

Case No.	Type of Macrocytic Anemia	Red Blood Cells, Million			Hemoglobin, Gm.			Reticulocytes, per Cent			Folic Acid Therapy	
		Initial	14th Day	Final Day	Initial	14th Day	Final Day	1st Day of Rise	Day of Peak	Per Cent at Peak	Daily Dosage, Mg.	Mode of Administration
1	Nutritional	2.16	2.69	4.08 (40)	8.8	9.3	11.7 (40)	4	8	14.8	20	Intramuscular
2	Nutritional	2.98	3.14	3.20 (20)	9.3	8.3	9.2 (20)	4	4	4.6	100	Oral
3	Nutritional	1.64	3.24	4.07 (19)	7.1	10.2	9.8 (19)	3	5	19.2	100	Oral
4	Nutritional	2.01	3.57	3.82 (30)	9.9	10.1	12.1 (30)	6	8	10.0	100	Oral
5	Nutritional	1.79	2.81	3.38 (30)	8.7	11.3	13.0 (30)	3	6	10.0	100	Oral
6	Nutritional	2.97	3.23	3.55 (27)	8.0	10.5	13.4 (27)	3	3	6.6	100	Oral
7	Pernicions	1.95	2.59	3.22 (55)	7.0	9.8	11.0 (55)	6	8	6.4	20	Intravenous
8	Pernicious	1.96	2.92	3.54 (49)	7.8	11.7	12.1 (49)	6	8	14.6	20	Intravenous
9	Pernicious	1.61*	1.58	1.58 (18)	6.2	8.0	8.0 (18)	7	10	11.0	20	Intravenous
10	Pernicious	2.01	2.69	4.22 (40)	8.3	10.7	13.9 (40)	4	6	14.8	100	Oral
11	Pernicious	2.59	3.14	3.72 (21)	8.6	10.6	10.1 (21)	4	7	14.4	100	Oral
12	Sprue	2.11	3.04	3.40 (23)	9.0	10.4	11.7 (23)	5	7	17.2	200	Oral
13	Sprue	2.16	2.66	3.13 (21)	9.5	9.7	9.8 (21)	5	7	17.2	200	Oral
14	Sprue	1.51	2.55	3.25 (20)	6.8	8.6	11.5 (20)	4	6	22.7	200	Oral
15	Sprue	2.17	2.85	2.85 (14)	8.1	10.0	10.0 (14)	6	8	12.5	200	Oral
16	Sprue	1.47	2.47	2.47 (14)	5.9	8.1	8.1 (14)	5	6	31.8	200	Oral
17	Sprue	1.87	2.60	2.60 (14)	8.1	10.0	10.0 (14)	3	6	19.5	200	Oral
18	Sprue	1.63	2.65	2.65 (15)	5.9	8.6	7.5 (15)	5	7	22.9	200	Oral
19	Sprue	1.48	2.72	2.72 (14)	5.9	10.9	10.9 (14)	5	12	18.7	200	Oral
20	Indeterminate	2.35	3.53	4.29 (48)	7.8	9.9	12.4 (48)	5	7	21.4	150	Oral
21	Indeterminate	2.32	3.31	3.38 (21)	8.0	11.2	11.7 (21)	4	7	19.6	100	Oral
22	Indeterminate	1.82	2.23	2.92 (22)	7.7	10.1	9.8 (22)	4	6	10.4	50	Intravenous
23	Pregnancy	1.63	2.30	4.25 (40)	7.3	9.1	12.2 (40)	4	6	29.0	50	Intravenous
24	Pregnancy	1.30	2.10	3.80 (30)	7.0	9.0	12.1 (30)	4	7	24.0	20	Intravenous
25	Pregnancy	1.80	2.70	3.90 (25)	9.0	10.1	11.6 (25)	4	6	23.1	20	Intramuscular
26	Associated with chronic alcoholic addiction, cirrhosis and neuritis	1.30	1.91	2.60 (30)	6.9	8.1	9.8 (30)	5	7	17.2	100	Oral
27	Carcinoma	1.10	1.92	3.19 (40)	6.5	7.1	7.8 (40)	4	7	17.2	100	Oral
28-45 inclusive, see text												

* In case 9 the initial red blood cell count is interpreted as being in error since it is out of line with the other determinations. At any rate the blood responded following treatment.

The diet of 2 patients with pernicious anemia and pellagra had been inadequate for many years. Of the other 3 patients with pernicious anemia the diet had been well balanced and, as a rule, adequate, although in some instances the total food intake had been reduced because of loss of appetite. This was true also of the patients with aplastic anemia, leukemia, cirrhosis of the liver and carcinoma. An adequate diet had been available to all the patients with macrocytic anemia of pregnancy, but vomiting and loss of appetite had caused them to reduce their food intake far below the desired level. In every case of nutritional macrocytic anemia, in every case of sprue and in the 3 indeterminate cases the diet had been grossly inadequate for several years. Although some of the patients included in this study live in Alabama and others live in Cuba, an analysis of their diets showed that, while the types of foods differed somewhat in the two countries, the nutritional quality of the diets of the two groups was strikingly similar. In both groups the diets tended to be low in animal proteins, minerals and vitamins, high in concentrated carbohydrates and relatively high in fat.

All the patients complained of loss of strength, vigor and appetite, and in most instances there had been a considerable loss of body weight. The diarrhea of the patients with sprue was characterized by stools which ranged in frequency from five to twenty times daily. The stools were yellow or white, watery, foamy and foul in odor. When diarrhea was present in cases other than sprue, the stools were watery and brownish, and the odor was not particularly foul. All the patients with diarrhea stated that it was more severe after meals.

The folic acid was administered either parenterally or orally. In 2 cases it was administered intramuscularly and in 6 cases intravenously. In order to get the folic acid into solution for parenteral administration, we converted it into a soluble salt by adding a normal sodium bicarbonate solution. To insure sterility the solution was then passed through a Seitz filter. When the folic acid was given orally in amounts of 20 mg. or more a day, one half the total dose was given in the morning and the other half in the afternoon. For oral administration each dose was prepared by mixing the folic acid to a smooth paste with four or five drops of cold water and then adding 20 cc. of cold water while the mixture was stirred constantly. After the patient drank this material, a small amount of water was used to rinse the glass thoroughly, and the patient drank this also to insure his getting as much of the folic acid as possible.

The laboratory findings and the response to folic acid therapy can be seen in the table, in which the results in 27 cases are shown. Data on 18 patients are not included in the table: 3 with aplastic anemia, 4 with iron deficiency anemia and 3 with the anemia associated with leukemia, none of whom responded to folic acid therapy; 5 patients[5] in whom we were attempting to establish the minimal dosage of folic acid and who did respond satisfactorily though perhaps not maximally on the amount administered (study of these cases is being continued, but it is too early to present data on them), and 3 patients with sprue who, we noted during the preliminary period of observation, were having a hemopoietic response. These 3 patients denied having had antianemic therapy recently, but on further questioning we found that they had been treated although they did not realize that they had received treatment for anemia. This indicates the importance of making base-line determinations in every case. Because these 3 persons had received antianemic therapy recently, they were not given folic acid at this time.

The results presented in the table show that only 1 of the patients included (patient 2) failed to respond to folic acid in amounts above 10 mg. a day. Although this patient is classified as having nutritional macrocytic anemia, a satisfactory diagnosis has never been made despite the fact that she has been seen by many competent physicians. The patient is still under observation in an endeavor to obtain more exact hematologic information.

The white blood cell counts of patients with nutritional leukopenia are not shown in the table. The white blood cells also tended to increase following the administration of synthetic folic acid. Early observations on this study were reported recently by Berry, Spies and Doan[6] and by Vilter, Spies and Koch.[2]

Prompt improvement occurred in the general condition of 26 of the 27 patients reported in the table. On the third or fourth day following the initiation of folic acid therapy these 26 patients volunteered that they felt stronger. At the same time there was a definite improvement in their appetites: those under observation in the hospital began eating all the food on their trays and frequently asked for additional servings, and those who were being treated as ambulatory patients and who ate their meals at home voluntarily told us that they had a similar improvement in appetite. This subjective improvement coincided with or was followed by an increase in the reticulocytes in the peripheral blood and by subsequent rises in the red blood cells and in the hemoglobin content of the blood. The reticulocytes began to rise on the third, fourth, fifth or sixth day of folic acid therapy and reached a peak on the sixth, seventh or eighth day. This improvement occurred regardless of the mode of administration.

It is of considerable interest that the case of macrocytic anemia associated with chronic alcoholic addiction, cirrhosis of the liver and peripheral neuritis (case 26) and the case of macrocytic anemia associated with carcinoma of the stomach with metastasis to the lungs (case 27) each showed a significant hemopoietic response following folic acid therapy.

In the patients with aplastic anemia, leukemia and iron deficiency, no improvement could be detected either clinically or by means of laboratory determinations.

SUMMARY AND CONCLUSIONS

These findings and others that my associates and I have reported show that synthetic folic acid administered either parenterally or orally is effective in producing a significant hemopoietic response in persons with nutritional macrocytic anemia, or with the macrocytic anemias of pellagra, of pernicious anemia, of sprue or of pregnancy. This hemopoietic response is characterized by an increase in reticulocytes, red blood cells, white blood cells, platelets, normoblasts and hemoglobin. The megaloblasts in the bone marrow are decreased following therapy.

It is worthy of emphasis that none of the patients with aplastic anemia, iron deficiency anemia or the anemia associated with leukemia showed any improvement. We have found that folic acid corrects the leukopenia of certain nutritional conditions but does not correct the leukopenia of a number of infectious diseases or idiopathic states.

The subjective and the objective improvement which follows the administration of folic acid to persons with macrocytic anemia in relapse is similar to that which follows liver extract therapy. There is a tremendous upsurge of well-being, an increase in strength and vigor, a return of appetite and a desire to walk about. It is too early in our studies to know whether or not folic acid is as effective as liver extract in maintaining the blood levels or in protecting against combined system disease.

The exact minimal and optimal doses of folic acid have not been determined, but our studies indicate that there is some variation from patient to patient. Although we have found that the administration of as much as 400 mg. daily has not caused any untoward symptoms, a daily dosage of from 5 to 10 mg. parenterally or some 10 mg. by mouth will often produce a maximum hemopoietic response. In order to determine the optimal and the average doses, the study of many patients will be required. The response of 5 patients to a daily dosage of 10 mg. by mouth may be an indication that the average doses, when they are finally determined, will be lower than those we are suggesting at this time.

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[5] Unpublished observations by Tom D. Spies, Carl F. Vilter and Richard W. Vilter.

[6] Berry, L. Joe; Spies, Tom D., and Doan, Charles A.: A Note on the Influence of "Folic Acid" on Leukocyte *Equilibrium in Malnourished* Patients, South. M. J. **38**: 590-592 (Sept.) 1945.

Unpublished observations of mine have shown that dried brewers' yeast powder, yeast concentrate or liver extract produces a response in persons with macrocytic anemia in relapse, a response which is out of proportion to the folic acid content of these substances. A number of patients have failed to respond fully to folic acid at the level of 3 or 4 mg. per day by mouth and have responded to liver extract or yeast administered in amounts which supply 1 mg. or less of folic acid daily. These findings suggest that the antianemic factor present in liver extract or yeast may be a combination of chemical substances or that it may be a much larger molecule than folic acid. From a practical point of view it must be stressed, however, that folic acid administered either orally or parenterally will give a satisfactory response in patients with macrocytic anemia.

I have studied 2 additional patients with macrocytic anemia who have developed such severe sensitivity to various forms of liver extract that they were unable to tolerate injections in sufficient amounts to maintain proper blood values. In both cases folic acid was substituted for the liver extract safely and satisfactorily.

It must be stressed that neither folic acid nor any other single chemical substance can be expected to take the place of all the nutrients essential for health. The patients in this study were given a restricted diet in order to test more effectively the antianemic properties of folic acid. A restricted diet is not recommended in the treatment of macrocytic anemia. On the contrary, we prescribe a diet high in protein, minerals and vitamins.

The laboratory observations obtained from frequent examinations of stools and bone marrows will form the basis of a separate report. Suffice it to say that the stools and the bone marrow both tend to approach normal following administration of a satisfactory amount of folic acid.

Despite the fact that there are no published reports confirming this work,[7] the findings are so striking that I have no hesitancy in making the statement that folic acid (synthetic Lactobacillus casei factor), a vitamin present in liver, yeast and other food materials, is a potent antianemic factor in certain types of macrocytic anemia in relapse. Folic acid performs a specific function in the maturation of the various cells of the bone marrow and has other obvious profound effects on our bodies.

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[7] Since this writing, personal communications from C. A. Doan and his associates at Columbus, Ohio, and from C. V. Moore and his associates at St. Louis have been received confirming the antianemic action of folic acid.

Intracranial Pressure.—Sudden intense increased intracranial pressure is brought about by deformation of the skull and acceleration of the head. The well known observation that the cranial cavity is spheroid in shape and that any change in its diameters would tend to decrease its volume capacity indicates one cause for increased intracranial pressure in closed wounds of the head. Another is the sudden setting of the head to motion or acceleration. Severe circumscribed depressed fractures may be associated with increased pressure due to the plunger effect of the depression. More extensive depressions may be associated with increased intracranial pressure, depending on their extent and the time period of their production. Cannon and Kocher felt that there was an increase in intracranial pressure at the time of the blow, and Scott demonstrated this change by the use of the Hamilton manometer. The increase in pressure is of such short duration that ordinary means of recording do not demonstrate it.—Gurdjian, E. S., and Webster, J. E.: Experimental and Clinical Studies on the Mechanism of Head Injury, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

SEVERE POSTOPERATIVE HYPOGLYCEMIA

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The clinical state associated with hypoglycemia is assuming an increasing importance in the differential diagnosis of atypical nervous system reactions. Since the first description of this condition by Harris[1] in 1924 there has developed a large body of literature pertaining in particular to etiologic mechanisms. Many organs of the body, including the liver, pancreas, adrenal, thyroid and pituitary, have seemed to play a role in various instances, but there have been certain other cases for which no acceptable explanation was apparent.

In the numerous reports of these cases of unexplained spontaneous hypoglycemia, little has been written concerning a decrease in blood sugar in previously asymptomatic individuals following a surgical procedure. Coma following an operation, while relatively rare, is a disturbing complication and the cases reported here illustrate another etiologic possibility which must be considered in the presence of this perplexing problem. In the past two years we have had 3 examples of such profound hypoglycemia following surgical procedures:

CASE 1.—Mrs. E. K., aged 76, white, a housewife, admitted to the fracture service of the Presbyterian Hospital for the second time on Sept. 16, 1943, complained of pain in the left hip of four months' duration. Her first admission had been in September 1941 for a fracture of the neck of the left femur. This had been successfully treated by fixation with a Smith-Petersen nail. She had been well since that time except for considerable fatigue, which was occasionally accompanied by substernal pressure and moderate dyspnea. Her general health had always been good and she had had no weight loss, headaches, vertigo or fever. She had never had ankle edema, orthopnea, cough or cyanosis. Her son stated that on several occasions she had complained of mild vertigo in the midafternoon or at bedtime. At the age of 22 she had a uterine fibroid removed and had had typhoid at 12. The family history was noncontributory. The patient was thin and nervous. The only positive findings on physical examination were slight narrowing of the arterioles of the fundi, a lower abdominal scar and a blood pressure of 160/88. Reflexes and neurologic signs were not abnormal.

Laboratory examination revealed hemoglobin 14.5 Gm., red blood cells 4.7 million and white blood cells 8,250 with 48 per cent polymorphonuclears, 45 per cent lymphocytes, 4 per cent monocytes and 3 per cent eosinophils. The urine was normal. An electrocardiogram showed low voltage of T_1 and isoelectric T_4F which suggested some myocardial damage. X-ray examination of the heart showed no evidence of cardiac enlargement.

On the fifth hospital day the Smith-Petersen nail was removed from the left hip. The preoperative medication was morphine sulfate 0.006 Gm. and scopolamine 0.0003 Gm. Anesthesia was local with procaine hydrochloride and the total duration of the procedure was forty minutes. No epinephrine or nitrous oxide was used. The patient withstood the procedure well and was returned to her room in good condition. Five hours later she began to feel very weak and thirsty and perspired freely. The lungs were clear and the blood pressure was 160/78. The pulse was irregular. Within two hours she was stuporous and perspiring profoundly but could be aroused. Blood pressure was 140/40. There was no cyanosis, and the lungs were clear. The speech had become sluggish, and she complained of a sense of pressure in the chest. In view of the past history of substernal oppression a myocardial infarction was suspected, but the picture more closely resembled the hypoglycemic state and therefore the blood sugar was determined, 24 mg. per hundred cubic

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[1] Harris, S.: Hyperinsulinism and Dysinsulinism, J. A. M. A. **83**: 729-733 (Sept. 6) 1924.

centimeters. Following an infusion of 5 per cent dextrose in saline solution the patient gradually improved, so that within six hours she was well oriented and talkative.

Next day the patient had four tonic-clonic convulsions, relieved immediately by intravenous 50 per cent glucose. Her blood sugar during these episodes was as low as 35 mg. per hundred cubic centimeters. Serum bicarbonate was 20.9 milliequivalents per liter and serum chlorides 107.3 milliequivalents per liter. An electrocardiogram taken this day showed changes which suggested an active process in the myocardium. Because of the persistent hypoglycemia the patient was started on a continuous intravenous drip of saline solution alternating with 10 per cent glucose. During the first postoperative day she received 75 Gm. of glucose. In order to increase this, on the following day a Miller-Abbott tube was introduced, and this, plus the intravenous route, allowed an intake of 1,050 Gm. of carbohydrate. Approximately the same regimen was continued. The fluid intake and output were more than adequate throughout.

During the ensuing days it was found that the patient required from 800 to 1,000 Gm. of glucose daily to remain out of hypoglycemia, but even on this regimen the blood sugar was as low as 39 mg. per hundred cubic centimeters. On the fourth postoperative day it was obvious that the patient was losing ground. Her fasting blood sugar was 40 mg. per hundred cubic centimeters; it was also 40 mg. per hundred cubic centimeters before lunch and rose only to 61 mg. per hundred cubic centimeters following the meal. Serum chlorides were 100 mEq./L., bicarbonate was 20.1 mEq./L., and the "calculated serum sodium" 130 mEq./L. The blood count showed only a mild anemia with no leukocytosis. An electrocardiogram taken that day showed further changes diagnostic of myocardial damage. X-ray examination of the chest showed peribronchial consolidation in the middle zone of the right lung. Her temperature had gone to 102.4 F. immediately after operation and to 103 F. on the second postoperative day, and now on the fourth day it rose suddenly to 103 F. A transfusion was given at this time and seemed to improve the general condition. She had considerable diarrhea, believed to be due to the tube feedings of glucose.

Because of the possibility of a pancreatic adenoma, an emergency exploratory operation was done on the fourth postoperative day. At operation there was a moderate amount of amber colored peritoneal fluid. The peritoneum was not inflamed, but the stomach was distended. The liver was smaller than normal, was dark green and showed numerous areas of fibrosis, especially in the region of the gallbladder. The whole organ was much firmer than usual. The gallbladder was normal. No abnormalities were seen or felt in the pancreas after careful examination. By the time the pancreas was exposed the heart beat had become imperceptible, and in spite of continued artificial respiration the patient died. Permission for autopsy was not granted.

Case 2.—V. U., a white man aged 27, a lawyer, was admitted to the urologic service of the Presbyterian Hospital on May 10, 1944 complaining of intermittent hematuria, left inguinal pain and urinary frequency of six months' duration. His past history and family history were noncontributory. There was no history of tuberculosis, acute rheumatic fever, diabetes or heart disease. Seven years previous to admission he had had an operation for intestinal obstruction, and subsequently an ectopic right kidney was removed following a severe attack of pain during the convalescent period. The appendix had been removed fifteen years previous to the present admission. Following the removal of the right kidney the patient had intermittent painless hematuria until six months before admission, when it became associated with left inguinal pain, frequency of urination and vomiting, which continued to the time of admission. There had been a 5 pound (2.3 Kg.) weight loss in two years. On physical examination the patient appeared well developed and in no acute distress. The temperature was 99.6 F., pulse rate 76, respiratory rate 20 and blood pressure 130/80. There were a McBurney incision and lower right rectus scars. The liver and left kidney were palpable but not tender. There was a well healed scar on the lateral aspect of the left thigh and upper part of the leg. Neurologic examination was negative.

Laboratory examination revealed hemoglobin 16.2 Gm., red blood cells 5.22 million, white blood cells 5,600 with 67 per cent polymorphonuclears, lymphocytes 30 per cent, monocytes 3 per cent. The urine showed a specific gravity of 1.011, alkaline reaction, albumin 2 plus, glucose negative and microscopically 15 to 20 red blood cells and 25 to 35 white blood cells per high power field. The Kline reaction was negative. The sedimentation rate was 3 mm. fall in one hour. Blood urea nitrogen was 9.8 mg. per hundred cubic centimeters. Retrograde pyelography demonstrated the presence of renal calculi in a nonrotated hydronephrotic left kidney and an absent right kidney.

In view of these findings a left pyelolithotomy was done on the fifth hospital day. The preoperative medication was morphine sulfate 0.012 Gm. and scopolamine 0.0004 Gm. The anesthesia was nitrous oxide, oxygen and ether by the closed method. The anesthesia was without incident and the duration of the operation thirty minutes. At operation two large stones composed of calcium and ammonium phosphates were removed from the left kidney pelvis. The blood pressure remained normal throughout the operation, and the condition of the patient was satisfactory at the end of the procedure.

Postoperatively the patient was given only 1,500 cc. of isotonic solution of sodium chloride. Ten hours later he was found to be moderately stuporous and within two hours comatose. The blood pressure was 120/55. Both diabetic coma and uremia were considered. Urinalysis showed a specific gravity of 1.013, albumin 4 plus, glucose negative and microscopically a few pus cells. Four hours later the patient was still comatose, had developed Cheyne-Stokes respiration, was perspiring profusely and had conjugate deviation of the eyes to the right with nystagmus to the right. The pupils were fixed to light. Reflexes were equal and active, and the Chvostek sign was negative. Intravenous calcium gluconate was given with no benefit. Blood sugar taken at the time was 38.5 mg. per hundred cubic centimeters, serum bicarbonate 20.5 mEq./L., urea nitrogen 18.2 mg. per hundred cubic centimeters. Fifty cc. of 50 per cent glucose solution was given intravenously, with gratifying improvement. The patient roused immediately and became oriented. The respirations became normal and the pupils again reacted to light. There were no localizing neurologic signs. A continuous intravenous drip of 10 per cent glucose was started, but the patient continued to have recurrent coma and restlessness. The patient was seen later that day by a neurologist, who believed the condition to be a result of hypoglycemia with possible permanent cerebral damage. A lumbar puncture was done. The fluid was crystal clear at a pressure of 196 mm. with normal manometric studies. It contained 4 cells per cubic millimeter, protein was 43 mg. per hundred cubic centimeters and the Wassermann reaction was negative. On the first postoperative day the temperature began to rise and did so steadily. It was considered that the patient possibly had an atypical pancreatic adenoma, and for this reason exploration was done. At the operation the duodenum was mobilized and after careful investigation no pathologic condition could be found in the pancreas. A biopsy of the liver was done at the time, which showed no abnormalities. The patient's blood sugar two hours after operation was 143 mg. per hundred cubic centimeters, but he remained in coma in spite of intravenous 50 per cent glucose solution. Blood sugars before and seventeen minutes after the administration of epinephrine showed no change at this time. There was a leukocytosis of 21,500, with polymorphonuclears 88 per cent. The serum bicarbonate was 21.9 mEq./L., chlorides 103.8 mEq./L. Two 10 mg. doses of desoxycorticosterone acetate were given with no beneficial results.

The patient continued in coma and on the seventh hospital day the temperature suddenly went to 107 F. and he died. Permission for autopsy was not granted.

Case 3.—E. L., a white man aged 55, a photographer, was admitted to the surgical service of the Presbyterian Hospital on Feb. 20, 1945 complaining of abdominal pain of three days' duration. Family and past history were noncontributory. For several months preceding admission he had felt considerable fatigue, particularly in the afternoon, but this was not related to the intake of food. There was occasional mild vertigo with these episodes but no particular perspiration. The patient had been greatly overworking for several months preceding admission. He was well until three days before admission, at which time he developed nonradiating pain in the lower part of the right upper quadrant just to the right of the umbilicus. This pain came on at night and was intense enough to prevent sleep. Accompanying this was a moderate amount of "heartburn" and considerable anorexia but no nausea. Bowel movements were normal. This pain was very persistent and continued to the day of admission. The day before, following the taking of sodium bicarbonate in warm water, he vomited, with some relief. On physical examination he was alert and cooperative and appeared to be in mild distress. There was considerable tenderness in the right upper quadrant and to a lesser degree over the entire right side of the abdomen. There was also a left indirect inguinal hernia and some tenderness in the right subcostal region. Blood pressure was 140/80.

Laboratory examination revealed white blood cells 14,100 with polymorphonuclears 84 per cent, lymphocytes 9 per cent, monocytes 6 per cent and basophils 1 per cent. The urine showed a specific gravity of 1.027, acid reaction, albumin 1 plus, glucose negative and microscopically 5 to 6 red blood cells and a rare white cell per high power field. The Kline reaction was negative. A flat plate of the abdomen showed no urinary calculi.

The patient was observed for two days in the hospital and the abdomen became definitely more tender over the right upper quadrant, but during the second day this tenderness moved down into the right lower quadrant, especially laterally, and it was considered that the appendix was the most probable source of difficulty. Therefore, on the second hospital day an exploratory celiotomy was done under nitrous oxide, ether and oxygen anesthesia by the closed method. The preoperative medication was morphine sulfate 0.012 Gm. and scopolamine 0.0005 Gm. The duration of the anesthesia was one hour and twenty minutes. The procedure was done through a right lower quadrant intermuscular incision. No pathologic condition was found, but the appendix was removed and on section showed only distal occlusion. The patient had vomited once during the induction state of anesthesia but had been in good condition otherwise. After completion of the operation he suddenly became quite cyanotic. The pulse was 84 and of good quality and the blood pressure, which had been 120/70, went only to 130/70. He responded well to oxygen and was supported by this measure for three hours in the operating room. During this period he responded slightly and it was noticed that the right eye was divergent. The left side of the chest showed relative limitation of movement and therefore bronchoscopy was done while he was still in the operating room and a moderate amount of mucus was removed. Aspiration of gastric contents or a cerebrovascular accident was suggested as a possible complication. During the next twenty-four hours the patient responded to a moderate degree but was very drowsy and difficult to arouse. The following morning a blood sugar test was 42 mg. per hundred cubic centimeters and he was again comatose. He had been moderately alert during the preceding six hours. Blood pressure was 120/80, temperature 102 F., pulse rate 88, respiratory rate 12. All extremities were flaccid and there was a slightly positive Babinski sign on the right. The knee jerks were absent. The pupils were small but reacted to light, and there was a right external strabismus. The left side of the chest was still relatively limited in motion. Nonprotein nitrogen was 43 mg. per hundred cubic centimeters. The x-ray of the chest showed peribronchial pneumonia at the right lung base. For this sulfadiazine was given and a level of 7 to .15 mg. per hundred cubic centimeters maintained. Because of the hypoglycemia the patient was put on a regimen of 5 and 10 per cent glucose intravenously and in spite of this was alternately in and out of hypoglycemic shock. A lumbar puncture was done and yielded crystal clear fluid at an initial pressure of 200 mm. The protein was 31 mg. per hundred cubic centimeters and sugar 56 mg. per hundred cubic centimeters. Alcohol and cholesterin Wassermann antigens were negative. X-ray examination of the skull showed no abnormalities.

The patient was continued on intravenous glucose for the hypoglycemia, and oxygen for the persistent cyanosis and dyspnea. The presence of an expanding intracranial lesion was believed to be improbable. Further chemical studies were done in an effort to find a solution. Serum bicarbonate was 29.7 mEq./L., serum amylase 32 units, inorganic phosphorus 4 mg. per hundred cubic centimeters, alkaline phosphatase 5.3 Bodansky units, urea nitrogen 18 mg. per hundred cubic centimeters, serum bilirubin a very faint trace, cholesterol 150 mg. per hundred cubic centimeters, total serum protein 6.5 per cent, albumin 4 per cent, globulin 2.5 per cent, cephalin flocculation negative. There was no anemia or leukocytosis. The sedimentation rate was 66 mm. in one hour. Venous pressure was 76 mm. of saline solution.

During the postoperative course the patient had many blood sugar determinations. The lowest recorded was 21 mg. per hundred cubic centimeters. During the first three days the patient's state of consciousness was well correlated with the degree of hypoglycemia as controlled by glucose injection. At that time he was placed on a regimen of epinephrine in oil intramuscularly 1 mg. every four hours, and a high protein diet. He was given 100 cc. of amigen and 100 cc. of orange juice by stomach tube on alternate hours. On this intake of 1,000 to 1,200 Gm. of carbohydrate in each twenty-four hours his blood sugar was maintained around 80 mg. per hundred cubic centimeters.

On the fourth postoperative day with no change in regimen the blood sugar went to 314 mg. per hundred cubic centimeters and continued in that range, reaching a high of 482 mg. per hundred cubic centimeters. There was an accompanying glycosuria. The following day the amigen diet was discontinued and, as he was then completely conscious and cooperative, a regular diet started. No insulin was given. By the following morning the blood sugar was 64 mg. per hundred cubic centimeters and the patient was again stuporous. However, this state was transient and his blood sugar soon returned to normal limits and he became asymptomatic. It was thought inadvisable to do a glucose tolerance curve. A cholecystogram done just before discharge revealed a definite gallbladder calculus. He left the hospital on the twenty-second day asymptomatic and on a regular diet without supplemental feedings. A fasting blood sugar done two weeks after discharge was 98 mg. per hundred cubic centimeters, and six weeks later he is apparently normal.

COMMENT

Conn[2] has offered a very complete classification of the etiologic mechanisms productive of hypoglycemia, but none of these cases fit into his schema. There was no evidence of disorder in the adrenals, pituitary, thyroid or ovaries. The pancreas as the primary factor must be considered. In the first 2 cases exploration did not necessarily rule out the pancreatic origin of the low blood sugar. Such factors as extrapancreatic islet cell tumors and diffuse hyperplasia of the pancreas[3] should be mentioned. However, with the sudden onset and the previously negative history their existence seems improbable. Harris[4] has shown that a subacute pancreatitis can produce symptoms of hypoglycemia. With the persistent elevation of the sedimentation rate in the third case plus the history of abdominal pain with no surgical pathologic change to account for it, the possibility of such a lesion must be admitted. The atypical history, normal amylase, severity of the hypoglycemia and again the fact that it came on suddenly following a surgical procedure provide evidence to the contrary.

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2. Conn, J. W.: The Spontaneous Hypoglycemias: Importance of Etiology in Determining Treatment, J. A. M. A. **115**: 1669-1675 (Nov. 16) 1940.

3. Valk, A. deT., and MacMillan, E. A.: True Hyperinsulinism Due to Diffuse Hyperplasia of Islet Tissue, North Carolina M. J. **2**: 648-652 (Dec.) 1941.

4. Harris, S.: Hyperinsulinism: Definite Disease Entity; Etiology, Pathology, Symptoms, Diagnosis, Prognosis and Treatment of Spontaneous Insulogenic Hypoglycemia (Hyperinsulinism), J. A. M. A. **101**: 1958-1965 (Dec. 16) 1933.

Serious liver damage is a recognized source of hypoglycemia. In case 1 there was evidence of fairly definite cirrhosis, but the liver was not involved in the other 2 cases. However, it is unusual[5] to find clinical or laboratory evidence of hypoglycemia in any but the most pronounced involvement of the liver parenchyma, and such was not the case in the patients in this series.

Patient 3 was known to have cholelithiasis. Coller and Jackson[6] believe that gallbladder disease and involvement of the biliary tract may cause changes in liver function of sufficient intensity to produce hypoglycemia. Conn[2] reported the occurrence of hypoglycemia in a patient with cholecystitis relieved by cholecystectomy. Although a similar situation cannot be definitely ruled out in our case, it again seems improbable in view of the sudden onset and the absence of evidence of acute gallbladder disease.

The possibility of a primary disturbance in the central nervous system must be mentioned. It is known experimentally[7] that stimulation of the right vagus will produce hypoglycemia, but only of a minor degree. Furthermore, Keller[8] found it necessary to sever free the ventral one third to one half of the thalamus in order to produce a hypoglycemic crisis in the dog. With this information in mind and considering the intensity of the hypoglycemia in these cases, it seems unjustified to assume that such a nervous system lesion is the cause of the hypoglycemic state in our patients.

Quirno and Linzoain[9] in 1943 reported a case of hypoglycemia in a woman following a cesarean section. The authors were of the opinion that possible causes were the known diminution in liver glycogen in pregnant women, plus the increased utilization during labor, and the added factor of an absolute lack of carbohydrate intake for forty-eight hours from the time of the operation to the onset of symptoms. The patient subsequently recovered.

Holman, Wood and Stockton[10] in 1943 reported a case of hypoglycemia of severe degree in which recovery occurred spontaneously following pancreatic exploration with negative findings. No explanation was offered for the phenomenon.

Failing to demonstrate in our patients any of the well recognized mechanisms productive of hypoglycemia, the next step is a search for some common denominator. The surgical procedures were in no way similar nor was the anesthesia; local anesthesia was used in only 1 case. The known common factors were morphine, scopolamine and the general shock of an operation. It is difficult to accept these routine therapies as a significant contribution to the production of hypoglycemia, although it is perhaps more than a coincidence that all three followed immediately on a surgical operation.

While in the present state of our knowledge it is idle to speculate as to the cause of the reactions, it is nevertheless worth while to point out that hypoglycemia should be considered when there are unusual responses during or following an operation. Differentiation from surgical shock might at times be a problem. According to Papper and his associates[11] the characteristic differentiating points are those of severe diaphoresis, an increased pulse pressure and a forceful pulse in hypoglycemic shock as opposed to a decreased pulse pressure and thready pulse in surgical shock. Hypoglycemic shock postoperatively is not a common occurrence, and its consequences if untreated are serious. Since it is easily diagnosed and amenable to therapy in its early stages, its recognition is of prime importance.

SUMMARY

1. Of 3 unusual cases of severe postoperative hypoglycemia 2 ended fatally. The third patient recovered and has remained normal to date.

2. In spite of a consideration of the possible etiologic mechanisms, no explanation of the phenomena seems apparent.

3. Although rare, the hypoglycemic state must be considered and a blood sugar level determined in any abnormal central nervous system response following a surgical procedure, even though it is a minor one.

UNCOMMON CLINICAL MANIFESTATIONS OF VIVAX MALARIA

MAJOR HARRY MOST
and
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The clinical diagnosis of vivax malaria in this country is often not difficult. The patient, in many instances, can suggest the correct diagnosis at the onset of an attack, and this can easily be confirmed by the demonstration of malarial parasites in one or more examinations of blood smears. There is a history of residence in an endemic area and, except for the first attack, there have been previous similar attacks. The symptoms of a "paroxysm" (acute attack) as a rule are quite characteristic, consisting of chilliness followed by a chill of varying severity and high fever of short duration followed by sweating, headache, backache, generalized aching and malaise, weakness, abdominal pain and tenderness and frequently nausea and vomiting. Vague muscular and joint pains, malaise, headache, backache and slight fever may precede the acute attack by several days.

Without treatment, paroxysms recur daily or every other day for a varying period. In a small number of patients spontaneous recovery takes place after one or more days, while in the majority of untreated patients the disease continues its activity for an extended period. With proper treatment there is prompt control of fever and other symptoms, and usually recovery from the acute attack is complete within a week. Complications or sequelae are rare, but one or more relapses follow in a majority of cases.

In studies comprising large numbers of patients with infections due to Plasmodium vivax several distinctly uncommon clinical manifestations have been encountered. Unless one is familiar with such modes of onset the diagnosis of vivax malaria may not be suspected, correct treatment will be delayed, and in some instances other treatment potentially dangerous to the patient may be instituted. Our purpose in this paper is to present briefly a few of the less common clinical manifestations of malaria due to P. vivax.

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A. "DELAYED PRIMARY" ATTACKS SIMULATING FEVERS OF UNKNOWN ORIGIN

Military or civilian personnel who have been on duty in endemic areas and have taken quinacrine regularly and in sufficient amounts for effective suppression will give no history of malaria while overseas. Sooner or later after they have returned to the United States they will discontinue taking suppressive medication. Those who have been infected with P. vivax will exhibit clinical signs and symptoms of active malaria within several weeks or months after stopping quinacrine. The onset of the disease in this group as well as in primary attacks when no antimalarial had been taken frequently does not conform to that usually associated with malaria by the general practitioner. The disease may begin insidiously with malaise and headache. The temperature, which is elevated slightly at the onset, rises gradually or abruptly within a few days to 103 or 104 F. and the pattern of the temperature may be completely irregular or of a septic remittent type. Severe shaking chills, which are so characteristic of relapses, may be absent during the first few days of the delayed primary attack despite high fever. Further, and often confusing to the physician, is the fact that one or two routine smears made early may be negative for malaria parasites. We have seen patients with delayed primary vivax malaria who had negative thick smears (less than 1 parasite in 72 squares, 0.1 cubic millimeter) when examined twice daily for two to five consecutive days despite high fever and daily chills before parasites could be demonstrated. When parasites do appear they may be present in relatively small numbers, in contrast to a relapse, in which the smears are usually positive on the first examination and the parasite count is relatively much higher.

We appreciate the quandary of the physician faced with a patient who has been sick for several days with rising fever, vague complaints and little in the way of physical findings. The white blood cell count is usually low, and if the spleen is palpable one may think of typhoid or some other bacterial blood stream infection. The temptation to prescribe sulfonamides or penicillin is great, especially if the first few blood smears are negative for parasites, and we have seen patients with this type of onset who received large amounts of penicillin without benefit.

We suggest that unexplained fever in the returned serviceman should not be treated until a definite diagnosis has been established unless laboratory facilities are not available. Thick smears should be examined twice daily by a trained technician and continued for at least a week. In the meantime, other diagnostic studies can be carried out without compromising the patient's chances of recovery by waiting or withholding therapy. If malaria parasites are demonstrated, the disease has been correctly documented and this is important as a baseline for future recurrences of a similar nature. It must also be remembered that in a few individuals the delayed primary attack may occur as long as a year after suppressive medication has been discontinued. Nevertheless it is helpful in the management of cases of fever of unknown origin as described to know whether the patient has been in endemic malaria areas, when he stopped suppressive medication and whether he has had similar episodes previously controlled with antimalarial medication.

B. SIMULATED PRIMARY ABDOMINAL CONDITIONS

1. *Acute Episodes.*—Attacks of vivax malaria are frequently accompanied by gastrointestinal symptoms and signs of varying severity. Nausea, vomiting and abdominal pain and tenderness are common, usually follow the paroxysm and are rarely of such intensity as to confuse the diagnosis of malaria.

In a small number of patients, however, the abdominal symptoms and signs may precede the paroxysm by a day or two and be of such severity as to suggest a primary acute abdominal condition, particularly acute appendicitis, intestinal obstruction or acute cholecystitis. Unless one is aware of this possibility, needless surgery may be performed.

At this hospital alone we have seen 3 patients who could easily have undergone laparotomy because of severe abdominal signs and symptoms which preceded an attack of malaria by one or two days. Two of these patients were referred to the hospital for surgery from nearby military establishments with the diagnosis of acute appendicitis. The history was identical in the 2 and consisted of abdominal pain followed by nausea and vomiting and localization of the pain in the lower abdomen. There was diffuse tenderness but no rigidity. In 1 the white blood cell count was normal and in the other it was low. Both patients had a slightly elevated temperature. Malaria parasites (P. vivax) were discovered in the thin smear in 1 case while the differential count was being done, and in the other they were found in the thick drop. One patient had a typical chill and other characteristic symptoms of vivax malaria on the same day of admission and the other had his attack the day after he was admitted. Signs and symptoms related to the abdomen disappeared with specific antimalarial treatment. In contrast to the usual findings in acute appendicitis the abdominal pain in malaria is more diffuse, tenderness is present in both lower quadrants, muscular rigidity is absent and rectal examination is not localizing.

A third patient was under observation for two days because of intractable nausea, vomiting, abdominal pain and suspected intestinal obstruction. There was slight fever, the abdomen was diffusely tender and the white blood cell count was 23,000 per cubic millimeter. On the second day the patient volunteered the fact that he had had two previous episodes of severe abdominal pain and vomiting which were followed in from one to three days by an attack of malaria. Thick smears were examined and found to contain a moderate number of parasites (P. vivax). Treatment with parenteral quinacrine was begun. Fluids were given intravenously and nothing by mouth. Later in the day the patient had a typical paroxysm with a rise in temperature to 104.2 F. Quinacrine therapy was continued by the intramuscular route for the remainder of the day. On the following day vomiting had ceased, the temperature and white blood cell counts were normal and specific medication was continued orally. This patient, who was a member of our detachment, had a similar attack of severe abdominal pain, vomiting, leukocytosis and slight fever approximately four months later. At this time the first observed episode was recalled, smears were examined and found positive, and specific treatment was begun with quinacrine intramuscularly. Recovery was prompt and complete.

Gallbladder disease is most apt to be confusing in those cases in which there is slight enlargement and tenderness of the liver with minimal icterus from previous paroxysms. On the other hand, we have seen a patient whose gallbladder perforated while his right upper quadrant pain, nausea and vomiting were attributed to his malaria.

Apropos of simulated acute abdominal conditions due to malaria, it should be remembered that they occur more frequently and with greater severity in acute falciparum infections. We have seen laparotomy performed for suspected intestinal obstruction, cholecystitis and extrahepatic biliary obstruction in 3 cases. At autopsy in each case the primary cause of death was acute falciparum malaria! In these cases the acute abdominal findings overshadowed the possibility of malaria, but careful histories and repeated careful blood examinations could in all probability have established the correct diagnosis.

In a small number of patients an attack of malaria may be preceded by several days or ushered in with a period of brisk watery diarrhea. If fever and vomiting occur before the chill, one may suspect acute gastroenteritis. The smears are almost always positive and within a short time the typical chill, high fever and other symptoms will suggest the correct diagnosis. In many of these cases the symptoms accompany each relapse and a good history is extremely helpful.

2. *Signs and Symptoms of a Chronic Nature.*—Occasionally protracted low grade malarial activity in some individuals with good immunity may be manifested by slight to moderate anemia, slight icterus and enlargement of the liver and/or spleen. Inadequate treatment of frequently occurring mild attacks may also produce the same findings. Either there is no fever or, if present, it is low grade. Parasites are almost always present in the circulating blood, but their density may be very low. In such a combination of findings one may suspect some intrinsic disease of the liver, gallbladder or biliary system or some hematologic disorder rather than malaria. We have seen several such cases with a red blood count as low as 2.2 million per cubic millimeter and in each instance careful study of blood smears proved the underlying condition to be vivax infection. Specific therapy with antimalarial drugs produces a reticulocyte response, recession of the liver, disappearance of signs and symptoms and recovery from the anemia without iron or other drugs.

One of us (H. M.) has seen a Chinese patient with enlargement of the liver and spleen and reduction in all the formed elements of the blood in whom the diagnosis of Banti's syndrome led to splenectomy. Several weeks after recovery from the operation the patient complained of chills and fever. Examination of blood smears disclosed numerous quartan parasites (Plasmodium malariae) and review of preoperative filed blood smears likewise disclosed very rare parasites. While this condition may not occur often if at all in vivax malaria it is worth noting what the effect of protracted low grade malaria infection may be regardless of the species of parasite.

If the possibility is borne in mind that gastrointestinal symptoms and signs of varying intensity or chronicity may be related to underlying infection with P. vivax in some cases the correct diagnosis may be established and needless surgery avoided. It is not suggested that all acute or chronic gastrointestinal conditions occurring in patients who have had malaria are related to that disease. In fact, we have seen a moderate number of patients with a history of prior malaria suffering currently from chills, fever, abdominal or other signs and symptoms who were treated without benefit with antimalarial drugs on the assumption that the findings were due to malaria. Smears were negative and the white blood cell count elevated, which is exceptional in malaria. The conditions subsequently shown to be incorrectly diagnosed as malaria were, in their order of frequency, acute follicular tonsillitis, cellulitis, thrombophlebitis, pyelitis, pneumonia and cholecystitis.

A careful history particularly of previous similar episodes related to proved attacks of malaria, physical and laboratory examinations including careful search for malaria parasites and evaluation of all the findings possibly in conjunction with a surgeon when indicated should lead to a rational plan of management of the individual case.

C. CENTRAL NERVOUS SYSTEM MANIFESTATIONS

Signs or symptoms referable to the central nervous system in malaria occur most frequently in severe infections with Plasmodium falciparum. It is for this reason that there is a tendency to label all central nervous system manifestations occurring in malaria as "cerebral malaria," with the alarming implications and necessity for vigorous treatment which severe falciparum infections carry. The changes in the brain in falciparum infections consist of occlusion of small vessels with parasitized red cells, parasites, pigment and débris, multiple small discrete or ring shaped hemorrhages and other pathologic alterations. No such changes in the brain in vivax infections have ever been described to our knowledge. Furthermore, falciparum infections, if adequately treated or suppressed with quinacrine, rarely relapse. However, if central nervous system systems and signs occur at the onset of an attack of malaria and there is any question about the history or species of parasite observed or if no history can be obtained, the safest procedure to follow is the institution of vigorous parenteral antimalarial therapy until it can be decided whether or not the infection is due to P. falciparum.

We have seen definite and severe symptoms and signs referable to the central nervous system at the onset of attacks of vivax malaria which are worthy of note. Severe headache is common but is not alarming, and symptomatic treatment suffices. Delirium is seen in some patients and is probably an expression of hyperpyrexia in individuals sensitive to high fever. Antipyretics, sponging, parenteral fluids and ice caps to the head usually are effective in controlling this symptom. Acute psychoses may occur during treatment and represent a rare manifestation of quinacrine toxicity unrelated to malaria itself. Severe stiffness of the neck preceding or accompanied by fever and a chill at the onset of an acute attack of vivax malaria may be suggestive of meningitis which must be excluded. The spinal fluid is normal, the white blood cell count tends to be low and the blood smears contain parasites (P. vivax).

Convulsions at the onset of an attack of vivax malaria may be alarming but fortunately occur rarely. We have seen only 3 examples of convulsions in proved cases of vivax malaria in the course of treating several thousand attacks. Brief reference will be made to these cases:

Case 1.—A man seen shortly after a generalized convulsion was perfectly oriented and stated that he had had convulsions during several previous severe attacks of malaria. These were documented in his medical record, and his transfer diagnosis was "recurrent cerebral malaria." No record of the species of parasite for these previous attacks was available. On the day of the current convulsion the patient had a severe paroxysm. Numerous asexual forms of P. vivax were present in the blood smears. The temperature rose quickly to 104 F., but the patient was fairly comfortable. However, within another half hour the temperature had risen to 105.8 F., shortly after which he had the convulsion. Salt and glucose were administered intravenously immediately afterward as well as 1 Gm. of acetylsalicylic acid by mouth. The patient was sponged with cold water and the naked body cooled with two electric fans. The temperature fell quickly and no further difficulty was experienced. In an attempt to prevent a paroxysm the following day, 1 Gm. of quinacrine was given intramuscularly in divided doses on the first day. There was no subsequent fever and the patient received 1.8 Gm. of quinacrine by mouth during the next six days, after which he continued to receive 0.1 Gm. daily for five months. The spinal fluid, neurologic examination, x-rays of the skull and electroencephalogram were normal. On questioning the patient we learned that he had had convulsions during childhood with measles and during early boyhood with scarlet fever and not again until he had his first attack of malaria many years later. In our opinion, convulsions during an attack of vivax malaria in this patient represent a central nervous system reaction to hyperpyrexia.

CASE 2.—This man likewise was returned from overseas with a diagnosis of "cerebral malaria" because of a severe convulsion during an attack of malaria. The species of parasite had not been identified. While under observation in a malaria study group he complained of severe headache and "spasm" of the right hand. X-rays of the skull, neurologic examination and the spinal fluid at an overseas hospital were normal. The patient stated that he had sustained a severe head injury followed by a short period of unconsciousness and subsequently developed constant headache, which he attributed to the head injury. Shortly after arrival in this country and while in the hospital for study he had a severe epileptiform convulsion starting on the right side and quickly becoming generalized. The patient shrieked at the onset, bit his tongue and was incontinent of urine. The convulsion subsided and the patient remained drowsy for about ten minutes, after which he was confused for another twenty minutes. In the meantime, blood smears were examined and reported as containing numerous malaria parasites (P. vivax). The rectal temperature was 102.8 F. Antimalarial and anticonvulsant drugs (diphenylhydantoin [dilantin] sodium and phenobarbital) were administered simultaneously by mouth. On the second day the patient was afebrile and complained only of a severe headache. There was amnesia for the details of the recent convulsion and slight weakness of the right hand; otherwise complete neurologic examination was negative. The spinal fluid was normal in all respects. At the end of a week antimalarial drugs were discontinued. In the meantime it was learned from another patient that the boy who had the convulsion had been observed in the midst of several convulsions outside the hospital. When we confronted our patient with this information he admitted having had convulsions but said that he was reluctant to report them for fear of being branded epileptic or submitted to cranial surgery. Electroencephalograms showed a localized area of abnormal excitability, but air visualization of the ventricular system was normal. The neurologist and neurosurgeon did not believe that surgery was indicated and classified the disease as a post-traumatic convulsive disorder ("postconcussive encephalopathy with focal area of degeneration, left cerebrum, central area"), recommending that anticonvulsant drugs be continued indefinitely. Two months later the patient, while still on anticonvulsant drugs, experienced a severe attack of malaria with a hard chill and high fever without developing any signs or symptoms related to the brain other than severe headache. We believe there is good evidence in this case that the convulsions which occurred during acute attacks of vivax malaria were due to underlying disease of the brain and that the fever or some other factor in the malaria attack acted as a trigger to set off the seizure. The patient was then kept on quinacrine suppression and anticonvulsant drugs without subsequent malaria or convulsive seizures.

CASE 3.—A white man aged 24 was returned from the Southwest Pacific area with a transfer diagnosis of "psychosis, unclassified, severe, manifested by agitation, blocking of thought and auditory hallucinations." His malaria history overseas disclosed that he had four attacks of malaria while in New Guinea and that during the last two he had convulsions and subsequently developed behavior changes for which he was returned to the United States. The only features in the past history which are relevant are the facts that he had criminal tendencies, spending short periods of time in a state reformatory or under parole, that he was poorly adjusted socially and that infrequently he had vague "spells" which could possibly have been "petit mal." It also seems probable from a review of his overseas record that his first serious attack of malaria during which he was in coma and had convulsions was due to infection with P. falciparum. Examination in this country failed to show evidence of any psychosis. Neurologic examination was negative. The spinal fluid on several occasions showed slight elevation in protein. Two electroencephalograms were considered abnormal and were "suggestive of epilepsy or some related disorder." While under observation at another hospital in this country he had one episode related to a vivax relapse during which there were symptoms and signs referable to the nervous system. These consisted of sudden onset of stuporousness and signs of minimal bulbar palsy characterized by nasal regurgitation, drooling and continual clearing of the throat because of impaired pharyngeal reflex. A prior attack of supposed falciparum malaria treated early at the same hospital was not accompanied by signs or symptoms related to the nervous system.

While the patient was under observation at this hospital smears were examined repeatedly and no suppressive medication was given. On Aug. 27, 1945 the patient had a positive smear for P. vivax but had no fever or symptoms. The following day, while lying on his bed trying to have a nap, he had a generalized convulsion. He was seen at once and found unconscious, frothing at the mouth and breathing rapidly for a short time followed by a longer period of apnea. The head was retracted to the left; otherwise the neurologic examination was negative. The rectal temperature was 102.2 F. Following recovery from the convulsion, 0.8 Gm. of quinacrine was given intramuscularly in divided doses and glucose in saline solution by vein. The patient remained confused the greater part of the day, but on the following day he had completely recovered except for not remembering the details of the previous day's attack. A total of 2.8 Gm. of quinacrine was given to terminate the recent vivax relapse.

It is difficult to correlate the patient's central nervous system symptoms solely on the basis of vivax malaria. It seems to us that he may well have had changes in the brain in a general way related to convulsive disorders (epilepsy) prior to his first attack of malaria. Secondly, that the initial attack of severe falciparum malaria overseas either aggravated the underlying condition or in itself induced some permanent changes in the brain. Subsequently vivax relapses resulted in the central nervous system signs and symptoms described, which were due to underlying disease of the brain caused or aggravated by prior falciparum malaria with cerebral localization.

The immediate diagnosis in patients with central nervous system signs and symptoms related to an attack of malaria may be difficult. We believe that central nervous system findings in the presence of a late relapse of malaria are probably associated with vivax infection but that the nervous system manifestations are due to underlying disease of the brain such as may be found in epilepsy, following head injury or in rare cases following prior severe falciparum infections with cerebral localization. Regardless of the species of parasite responsible for the current attack, the management is the same; namely, prompt and vigorous antimalarial therapy parenterally. However, the subsequent treatment of these cases poses a more serious problem. Should one continue suppressive medication indefinitely? Careful studies should be instituted to determine whether there is an underlying pathologic condition in the brain. Anticonvulsant drugs should be continued in those individuals who suffer from convulsive disorders until the malaria infection has run its whole course or has otherwise been eradicated by treatment.

D. ALLERGIC MANIFESTATIONS

Writers from the tropics have in the past referred to "malaria sensitization and malaria asthma." We have not seen asthma which could definitely be attributed to malaria. But we have seen 12 patients with urticaria of varying severity which preceded or accompanied an acute attack of vivax malaria, and these are worthy of note in a general way. The first patient reported to his ward officer because of severe generalized urticaria. The latter prescribed symptomatic treatment and arranged for an allergy consultation. When the allergist phoned on the following day to inquire where the patient was, it was learned that he was in bed with an acute attack of vivax malaria. No serious thought was given to a relation of these events. However, soon afterward another patient was seen with urticaria and on the basis of the first case smears were done and found positive for P. vivax. No treatment was given and later in the day the patient had a paroxysm. Subsequently 10 additional patients were observed who had urticaria for one or two days prior to an attack of malaria or on the day of the attack before drugs were given. In some patients the urticaria was very severe, involving the eyes and face, and in 1 patient probably the larynx was involved. These patients had no other allergic history, and a few who were carefully skin tested were found negative to dusts, pollens, common foods or other antigens.

We presume that these patients have been sensitized by the plasmodia or their products and that, when the former are present in sufficient number to exceed the amount of antibody present, urticaria or some other allergic manifestation follows. The fact that urticaria may precede attacks of vivax malaria is useful, and if blood smears are examined the diagnosis can be made early and time consuming allergy studies dispensed with.

E. MISCELLANEOUS

1. *Respiratory Symptoms.*—Upper respiratory symptoms, especially during winter months, are common in vivax malaria. Likewise, chest pain and rales are not uncommon during an attack. These findings in a patient with a chill and a high fever may suggest pneumonia. The chest x-ray is negative and smears will contain parasites, establishing the diagnosis of vivax malaria. These two diseases are not often confused, but we have seen treatment of pneumonia delayed because it was assumed that the patient had malaria, and conversely we have seen suspected pneumonia treated without effect because the patient actually had malaria. In malaria the elevation of temperature is not sustained beyond a few hours after the chill, and the accompanying symptoms, negative x-ray and positive blood smear for parasites should make the diagnosis simple if both diseases are considered.

We have seen 1 patient with sharp chest pain during an attack of vivax malaria which was due to a spontaneous pneumothorax produced during the chill. This is a very unusual occurrence.

2. *Rupture of the Spleen.*—This serious complication is a very rare occurrence during an attack of malaria and is mentioned only in passing. The symptoms and signs are so dramatic and the abdominal findings such that the diagnosis is usually made. Immediate surgery is indicated, following which the attack of malaria can be controlled with parenteral medication.

3. *Chills and Fever After Injuries or Operations.*—It is well known that trauma, general anesthesia or surgery may induce a relapse of vivax malaria. However, this may occur years after cessation of all malaria activity and the disease forgotten. If this is borne in mind and blood smears are examined for malaria parasites, needless worry about postoperative infection or embolization can be avoided.

4. *Chills and Fever or Jaundice After Transfusions.*—Patients who are receiving repeated transfusions of fresh whole blood for an acute or chronic disease may develop jaundice, anemia or chills and fever. This may be due to activity from transfused vivax parasites rather than infectious hepatitis or hemolytic, Rh or pyrogenic reactions. The latter certainly are more common than transfusion malaria, but this possibility must not be overlooked and smears should be examined for parasites.

COMMENT AND CONCLUSIONS

We have described our experience with the relatively uncommon, though not rare, clinical manifestations of vivax malaria with the thought that appreciation of these findings may lead to a more rational approach in the management of acute or chronic problems in the patient who has had or may have vivax malaria.

1. Fevers of unknown origin in the returned serviceman who has not had malaria before because of effective suppression which has now been discontinued for some time may be due to the onset of the first or "delayed primary" attack of malaria. There may be gradually rising fever or high fever with or without chills for several days, during which time smears may be negative. Patience and carefully studied smears made repeatedly will be rewarded in many cases by a diagnosis of vivax malaria. Useless treatment with penicillin or sulfonamides will be avoided and the disease accurately documented for future reference. Therapeutic trials with antimalarial drugs are not advised if laboratory facilities are available.

2. Acute or chronic symptoms or signs suggesting a primary disease related to the abdominal contents may be present prior to or at the onset of an acute attack of vivax malaria or may be the result of a continuing low grade vivax infection. Before surgery is performed, blood smears should be examined carefully to exclude the possibility of active vivax malaria. A history of similar episodes related to proved attacks of malaria is extremely helpful. The most common findings which may be confusing are severe nausea, vomiting, abdominal pain and tenderness, diarrhea, fever, slight jaundice and anemia, and enlargement of the liver and spleen. The white blood cell count is rarely elevated, smears usually contain parasites (P. vivax). Initial treatment when the correct diagnosis has been made consists in giving antimalarial drugs parenterally when severe vomiting exists and the administration of fluids containing salt and glucose intravenously. Subsequent treatment can be given by mouth until the required total amount of drug has been given.

3. Convulsions may occur with attacks of vivax malaria. These may occur as a reaction to hyperpyrexia or in patients with underlying brain disease. Preexisting epilepsy, head injury and falciparum malaria must be excluded. Treatment of the convulsion is symptomatic, and the current attack of malaria is terminated by vigorous dosage of antimalarial drugs parenterally until fever and parasitemia have been controlled. Attempts should be made in exact species identification of the parasite. Acute psychoses occur rarely and are an expression of quinacrine toxicity. Meningitis may be simulated by a stiff neck and fever, but a normal spinal fluid, low or normal white count, the typical paroxysm and positive blood smear for malaria parasites establish the correct diagnosis.

4. Urticaria or severe angioneurotic edema may precede or accompany acute attacks of vivax malaria. A history of such correlated episodes and examination of blood smears will dispense with time consuming allergy studies in these cases.

5. Chest pain, rales, fever and chill occurring with an acute attack of vivax malaria in the winter months may be confused with pneumonia. History, white count, malaria smears and chest x-ray are helpful in differentiation.

6. Miscellaneous manifestations of vivax infection, as rupture of the spleen, pneumothorax following the paroxysm and corneal herpes, are rare and are mentioned in passing. Chills and fever following trauma or surgery may be due to a vivax relapse long after the disease has ceased to be active. Consideration of this occurrence will dispel worry over postoperative infection or embolization. Chills and fever or jaundice in patients who are receiving transfusions repeatedly may be due to transfused vivax parasites and may simulate hemolytic, Rh and pyrogenic reactions or infectious hepatitis.

7. Not all acute or chronic conditions or chills and fever which occur in patients who have had or may have vivax malaria are due to the latter. Such an assumption will lead to failure or delay in recognition and proper treatment of such common conditions as acute follicular tonsillitis, thrombophlebitis, cholecystitis, pyelitis or pneumonia.

8. Acute manifestations of vivax infection can be controlled by the administration of 2.8 Gm. of quinacrine during seven days. Of this total, 1 Gm. is given on the first day in divided doses either by mouth or intramuscularly if severe vomiting or central nervous system symptoms preclude oral medication. Intravenous salt and glucose are helpful in controlling fluid and salt loss and symptoms in vomiting and hyperpyrexia. Antipyretics, intravenous fluids and artificial cooling of the body are useful in reducing abnormally high fever during an attack.

Psychiatric Problems in the Air Forces.—The relation of air sickness to anxiety is interesting in that those who suffer from this malady usually have a good deal of conscious or unconscious anxiety about riding in an airplane. Provided no disease has developed in the internal ear, air sickness in flying personnel not previously afflicted is usually psychogenic and represents an unusual conversion symptom. Yet in civilian life patients during psychoanalytic treatments experience sensations similar to air sickness as symptoms of overwhelming anxiety liberated by the psychic probing.—Grinker, Roy R., and Spiegel, John P.: War Neuroses, Philadelphia, Blakiston Company, 1945.

STREPTOMYCIN RESISTANCE OF GONOCOCCI AND MENINGOCOCCI

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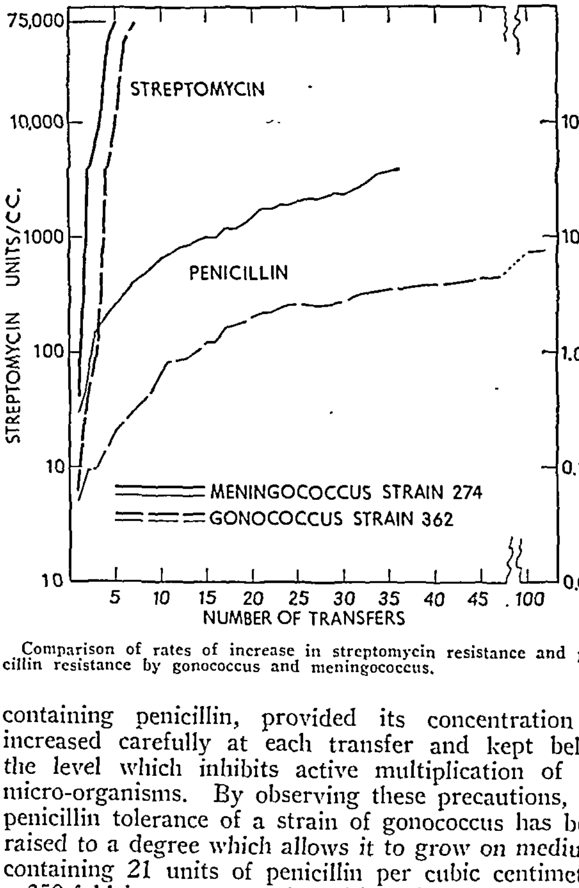
Drug resistance or "fastness," that is the acquisition by micro-organisms of tolerance for chemotherapeutic agents, has long engaged the attention of bacteriologists and parasitologists[1] and has recently become a matter of concern among clinicians and epidemiologists. Resistant strains of micro-organisms usually susceptible to the sulfonamides have been recognized for some time, and penicillin resistant strains are now beginning to appear in clinic and laboratory. The apprehension which might have been caused by the latter is currently being allayed by the introduction of streptomycin.

Experiments which we[2] have recently completed have demonstrated that meningococci and gonococci acquire resistance to penicillin during cultivation on mediums containing penicillin, provided its concentration is increased carefully at each transfer and kept below the level which inhibits active multiplication of the micro-organisms. By observing these precautions, the penicillin tolerance of a strain of gonococcus has been raised to a degree which allows it to grow on mediums containing 21 units of penicillin per cubic centimeter, a 350-fold increase over the initial tolerated concentration. In similar fashion a strain of meningococcus has acquired tolerance for 41 units per cubic centimeter, or 136 times the concentration of penicillin which originally permitted growth. These rates of increase are shown graphically in the accompanying chart.



Comparison of rates of increase in streptomycin resistance and penicillin resistance by gonococcus and meningococcus.

Moreover, the virulence of these penicillin resistant meningococci was retained during a large part of the rise, up to a level of 18 units per cubic centimeter.

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[1] For an early discussion of acquired resistance see Dale, H. H.: Chemotherapy, Physiol. Rev. **3**: 359, 1923.

[2] Miller, C. P., and Bohnhoff, Marjorie: Studies on the Action of Penicillin: IV. The Development of Penicillin Resistance by Gonococcus, Proc. Soc. Exper. Biol. & Med. **60**: 354, 1945; V. The Virulence of Penicillin Resistant Strains of Meningococcus, ibid. **60**: 356, 1945.

Meningococcic infections experimentally produced in mice with these resistant strains required very large doses of penicillin for their control.

The susceptibility of these penicillin resistant strains to streptomycin and the possibility of the development of streptomycin resistance by freshly isolated strains of meningococci and gonococci prompted the investigation here reported.

EXPERIMENTAL

Susceptibility of Gonococci and Meningococci to Streptomycin.—The initial susceptibility of six strains of gonococcus and ninety-six strains of meningococcus were tested for their streptomycin tolerance by inoculating each strain onto a series of blood agar [3] plates containing graded concentrations of streptomycin.[4] The highest concentration on which any colonies developed in forty-eight hours was considered the limit of tolerance for that strain.

Table 1.—*Streptomycin Treatment of Mice Infected with Streptomycin Resistant Meningococci*

In Vitro: Resistance of Meningococci for Streptomycin, Units per Cc.	Number of Mice	Total Dose of Streptomycin * Administered, Units	Results
40	12	50	All died
	18	70	All but 2 survived
	26	100	All survived
10,000	8	9,000†	All died
	8	10,000	All died
	8	15,000†	All died
75,000	8	9,000†	All died
	8	10,000	All died
	8	15,000†	All died

* Given in two subcutaneous injections three and six hours after inoculation; those marked + received three injections two, four and six hours after inoculation.

Table 2.—*Penicillin Treatment of Mice Infected with Streptomycin Resistant Meningococci*

In Vitro: Resistance of Meningococci for Streptomycin, Units per Cc.	Number of Mice	Total Dose of Penicillin * Administered, Units	Results
40	10	10	All but 2 died
	16	20	11 survived
	28	40	All survived
10,000	8	20	4 survived
	8	60	6 survived
75,000	16	20	12 survived
	8	60	All survived
	8	80	All survived

* Given in two subcutaneous injections three and six hours after inoculation.

For the six strains of gonococcus, the streptomycin tolerance varied from 8 to 40 units per cubic centimeter. For the ninety-six strains of meningococcus, it varied from 1 to 40 units per cubic centimeter.[5] All of the strains tested could therefore be classified as susceptible to streptomycin in their original state.

Method of Developing Streptomycin Resistance.—The micro-organisms were grown on freshly prepared blood agar plates containing known concentrations of streptomycin. Each transfer was made onto several plates containing different concentrations of streptomycin to insure abundant growth on at least one. Inoculated plates were placed in a metal box containing a lighted candle and incubated for twenty-four hours, after which they were examined and described. Transfer to the next set of plates was made from the medium which contained the highest concentration of streptomycin permitting growth. Plates which showed no growth at the end of twenty-four hours were returned to the incubator and examined again the following day.

The first few trials showed that both gonococci and meningococci acquire resistance to streptomycin much more rapidly than they do to penicillin.

The rates of increase for a strain of each are presented graphically in the chart, which plots the highest concentration of streptomycin permitting growth in each successive subculture.

All of four strains of gonococcus and nine of meningococcus acquired streptomycin resistance at approximately the same rate; i. e., four to six daily transfers sufficed to raise their resistance to a level which enabled them to grow on mediums containing 75,000 units of streptomycin per cubic centimeter, the highest concentration which was practicable with the supply available.

In contrast with the very rapid rise in streptomycin resistance, penicillin resistance was developed by the same strains at a much slower rate, as shown in the chart.

MORPHOLOGIC APPEARANCE OF STREPTOMYCIN RESISTANT STRAINS

The macroscopic appearance and physical characteristics of colonies as well as the morphology of the individual cells of streptomycin resistant gonococci and meningococci showed none of the changes observed in penicillin resistant strains.

DURATION OF STREPTOMYCIN RESISTANCE

It is too soon to make any statement about the permanence of streptomycin resistance. At present we can only state that it has persisted for three and one-half months.

EFFECT OF STREPTOMYCIN RESISTANCE ON THE VIRULENCE OF MENINGOCOCCI

All of the animal experiments in this study were made with meningococci because they lent themselves more easily to the purpose.

Method of Determining Virulence.—Virulence of meningococci was determined by infecting mice with varying numbers of meningococci suspended in mucin, according to the method of Miller and Castles.[6] By this means less than 10 meningococci of maximal virulence are required to initiate a lethal infection.

The virulence of each strain was determined before and several times during the course of its development of streptomycin resistance. In no instance was there any loss of virulence, and one strain actually increased in virulence to an appreciable degree as it became streptomycin fast.

Determination of the Therapeutic Action of Streptomycin on Experimental Meningococcic Infection.—Mice were infected with standard inoculums of approximately 100,000 minimum lethal doses by the intraperitoneal inoculation of meningococci suspended in mucin and were treated by subcutaneous injection of 0.5 cc. of streptomycin in saline solution three and six hours or two, four and six hours after inoculation. A representative number of the mice dying in each experiment were examined post mortem. Cultures were made of the heart's blood to be sure that death was due to meningococcic sepsis. As will be seen in table 1, infections initiated with 100,000 minimum lethal doses of meningococcus normally susceptible to streptomycin were regularly brought under control by two subcutaneous injections of 50 units of streptomycin, a total of 100 units.

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[3] The basic ingredient of the agar was a tryptic digest of casein to which 0.065 per cent of cystine was added. Directions for its preparation are given in Miller, Moeller and Bohnhoff (A Method for Production of a Localized Gonococcal Infection in the Rabbit's Eye, Proc. Soc. Exper. Biol. & Med. 58:143, 1945). One-tenth volume of rabbit blood and the appropriate quantity of streptomycin were added at the time the plates were poured and thoroughly mixed before hardening.

[4] Dr. J. M. Carlisle of Merck and Company, Inc., Rahway, N. J., supplied the streptomycin used in these experiments.

[5] It should be remembered that streptomycin units and penicillin units bear no direct relation to each other.

[6] Miller, C. P., and Castles, Ruth: Experimental Meningococcal Infection in the Mouse, J. Infect. Dis. 58:263, 1936.

After the strain had acquired streptomycin resistance in vitro, mice were infected with similar inoculums and treated with streptomycin in the same way. All of these animals succumbed to meningococcic sepsis (proved by cultures of heart's blood) in spite of treatment with streptomycin in doses up to a total of 15,000 units, the largest amount which could be administered without serious symptoms of drug toxicity.

The inability of streptomycin to control infection with streptomycin resistant meningococci was even more strikingly illustrated by the following experiment: Mice were infected with small numbers of streptomycin resistant meningococci (10 to 100 or approximately 10 minimal lethal doses). They were then treated with 15,000 units of streptomycin in three doses. One half of them died, and cultures of heart's blood of all mice examined post mortem were positive for meningococci. This finding confirmed the conclusion drawn from the preceding experiments that meningococci which had acquired streptomycin resistance in vitro were able to produce a fatal sepsis in animals despite treatment by relatively enormous doses of streptomycin.

PENICILLIN TREATMENT OF INFECTIONS WITH STREPTOMYCIN RESISTANT MENINGOCOCCI

The susceptibility of streptomycin resistant gonococci and meningococci to penicillin in vitro suggested the determination of their susceptibility in vivo. Meningococcus was chosen for the experiments because it was better suited to the purpose. Three subcultures of the strain already described were used: one before it had developed any resistance to streptomycin above its initial level of 40 units, and one each after it had acquired resistance to 10,000 and 75,000 units of streptomycin, respectively. Each subculture was used to infect a group of mice, which were then treated with graded doses of penicillin. As will be seen in table 2, very little more penicillin was needed to cure all of the infections in the second and third groups than was required for those in the first group.

When these results are compared with those in table 1, it is obvious that infections with streptomycin fast meningococci which resist treatment with maximum doses of streptomycin yield to small doses of penicillin. In other words, streptomycin resistant meningococci are about as susceptible to penicillin in vivo as they are in vitro.

STREPTOMYCIN SUSCEPTIBILITY OF PENICILLIN RESISTANT GONOCOCCI AND MENINGOCOCCI IN VITRO

Strains of gonococci and meningococci were tested for their streptomycin tolerance in vitro before and after they had become resistant to high concentrations of penicillin. All were found to be at least as susceptible to streptomycin, and one strain of gonococcus became somewhat more susceptible to streptomycin after it had acquired resistance to penicillin than it had been originally.[7]

STREPTOMYCIN TREATMENT OF PENICILLIN RESISTANT INFECTIONS

TABLE 3.—*Comparison of Penicillin and Streptomycin Treatment of Mice Infected with Penicillin Resistant Meningococci*

In Vitro: Resistance of Meningococci for Penicillin, Units per Cc.	Mice Treated with Penicillin			Mice Treated with Streptomycin		
	Number of Mice	Total Dose Administered,* Units	Result	Number of Mice	Total Dose Administered,* Units	Result
0.3	10	10	All but 2 died	12	50	All died
	16	20	11 survived	18	70	All but 2 survived
	28	40	All survived	26	100	All survived
10	24	400	All but 7 died	6	50	All survived
	8	500	4 died	12	70	All survived
	8	600	7 survived	6	100	All survived
14	16	400	All died	12	70	8 survived
	8	500	1 died	12	100	All but 1 survived
	16	600	All survived	6	150	All survived

* Given in two subcutaneous injections three and six hours after inoculation.

Mice were infected with meningococci which had been rendered resistant to 10 and 14 units of penicillin per cubic centimeter, and some were treated with penicillin and some with streptomycin. For comparison mice were also infected with cultures of the same strain before it had become penicillin resistant. As will be seen in table 3, very large doses of penicillin were required to cure these infections, showing that the micro-organisms were highly resistant to the action of the drug in vivo as well as in vitro. Nevertheless, these penicillin resistant infections responded favorably to practically the same doses of streptomycin as did infections with nonresistant meningococci.

COMMENT

The initial tolerance of a number of strains of gonococcus and meningococcus for streptomycin was found to vary within very narrow limits, indicating that none of these strains was naturally resistant to the drug. The strains of gonococcus were mostly freshly isolated strains. Those of meningococcus (ninety-six in all) included some recently isolated, many stored in the frozen state since isolation and a few kept under cultivation for months on artificial mediums.

Repeated subcultivation on streptomycin agar induced streptomycin resistance of both gonococci and meningococci at a very rapid rate, so rapid, in fact, that all of the strains subjected to this treatment required only four to six daily transfers to mediums containing increasing concentrations of the drug to permit them to grow abundantly on mediums containing 75,000 units of streptomycin per cubic centimeter, the maximum concentration which could conveniently be employed with the supply at our disposal. This technical limitation prevented the determination of the ultimate limits of streptomycin resistance, a point of considerable importance because it would answer the engaging question whether or not micro-organisms can become completely and absolutely streptomycin fast.

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[7] Unpublished experiments.

The rate of enhancement of streptomycin resistance becomes even more remarkable when it is compared with that of penicillin resistance on the same strains of gonococci and meningococci by the same methods. The latter proceeded at a much slower pace and never reached levels suggesting the possibility of absolute fastness.

In vitro resistance to streptomycin was confirmed by in vivo experiments which showed that infections with streptomycin resistant strains of meningococci could not be controlled by the largest doses of streptomycin tolerated by the animals, doses which would be equivalent on a weight for weight basis to about 55,000,000 units for a 70 kilogram man.

These streptomycin resistant meningococci were quite susceptible to penicillin in vitro, and infections produced with them were controlled by doses of penicillin equal to or only slightly greater than those required by nonresistant meningococci.

Conversely, penicillin resistant meningococci were normally suceptible to streptomycin on artificial mediums and in the infected animal.

In other words, meningococci resistant to either drug were found to be susceptible to the other in vitro and in vivo. The same correlation was observed in vitro with gonococci.

These observations suggest that streptomycin and penicillin act on these micro-organisms in quite different ways. This conclusion is supported by three other differences in the behavior of gonococci and meningococci toward streptomycin and penicillin: (*a*) the more rapid acquisition of streptomycin resistance, (*b*) the absence in streptomycin resistant gonococci and meningococci of the gross physical change and abnormal microscopic appearance of penicillin resistant micro-organisms and (*c*) the retention or even enhancement of virulence of meningococci after acquiring streptomycin resistance, whereas the development of penicillin resistance tends to lower their virulence somewhat.

It should be pointed out that the observations here described have been made on micro-organisms which have been rendered drug resistant by artificial means and that these findings must not be assumed to apply by analogy to naturally resistant strains if and when they arise. The relation of artificially acquired and naturally acquired resistance to chemotherapeutic agents involves many questions as yet unanswered.

SUMMARY

Streptomycin resistance of gonococci and meningococci was determined by inoculating series of blood agar plates containing graded concentrations of streptomycin and noting the highest concentration which permitted the development of any colonies in forty-eight hours. The original or native streptomycin resistance of six strains of gonococcus was found to be between 8 and 40 units per cubic centimeter and of ninety-six strains of meningococcus 1 to 40 units per cubic centimeter.

Repeated cultivation of gonococci and meningococci on mediums containing increasing concentrations of streptomycin enhanced their streptomycin resistance rapidly —within four to six transfers—to such a degree that growth occurred on concentrations of 75,000 units per cubic centimeter, the highest concentration employed. These streptomycin resistant meningococci remained fully virulent for mice and produced lethal infections with generalized sepsis in spite of treatment with 15,000 units of streptomycin, the maximum dosage tolerated by the animals. Similar infections with the same strains before they had become resistant were regularly cured by doses of 70 to 100 units of streptomycin.

Streptomycin resistant meningococci were susceptible in vitro and in vivo to penicillin, and penicillin resistant meningococci were susceptible to streptomycin in vitro and in vivo.

Gonococci resistant to either drug were susceptible to the other in vitro.

Streptomycin resistant micro-organisms did not show the gross and microscopic abnormalities observed in penicillin resistant strains.

It must be concluded that the mode of action of streptomycin on these micro-organisms differs from that of penicillin.

RHEUMATIC FEVER ON THE ISTHMUS OF PANAMA

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Medical literature leads one to believe that rheumatic fever is an uncommon disease in the tropics. It suggests also that when the disease does occur it is mild and cardiac damage is slight. Manson-Bahr[1] states that "as rheumatic fever is a rare disease in the tropics, rheumatic affections of the valves of the heart are correspondingly rare." J. T. Clarke[2] stated that rheumatic fever is practically unknown at sea level in tropical areas. W. T. James[1] has been quoted by Manson-Bahr as stating that he had not seen a case of rheumatic fever in twenty-four years of practice in Panama. Goetz[3] found rheumatic heart lesions in 3 autopsies on native Panamanians. He also reported 3 cases of chorea and 5 cases of rheumatic fever among 11,000 admissions to Santo Tomas Hospital in Panama City. Chanis[4] gave an excellent description of rheumatic lesions found in 12 native Panamanian patients who died in Santo Tomas Hospital. Acute lesions caused by rheumatic fever accounted for 5 deaths, and cardiac failure resulting from healed rheumatic valvulitis caused death in the remaining 7 patients.

SOURCE OF MATERIAL

The number of cases of active rheumatic fever in Gorgas Hospital prompted this review of the clinical and postmortem records of the hospital. The records were studied separately by each of us and after complete agreement the cases were classified. Only patients having either typical cardiac or joint involvement were included. Those in whom the findings were not clearcut or adequately described, but in whom the diagnosis of rheumatic fever seemed probable, were considered as "possible" cases. If further doubt existed, they were not included in this report.

From the Medical and Pediatric Services of Gorgas Hospital, Ancon, Panama Canal Zone.

[1] Manson-Bahr, P. H.: Manson's Tropical Diseases, ed. 11, Baltimore, Williams & Wilkins Company, 1940, p. 44.

[2] Clarke, J. T.: Geographic Distribution of Rheumatic Fever, J. Trop. Med. **33**: 249-258 (Sept. 1) 1930.

[3] Goetz, L., cited by Coburn, A. F.: The Factor of Infection in the Rheumatic State, Baltimore, Williams & Wilkins Company, 1931.

[4] Chanis, R. A.: Manifestations and Sequelae of Rheumatic Fever in Panama, paper read before the Medical Association of the Isthmian Canal Zone in November 1937.

ANALYSIS OF CASES

Prior to 1930, only 8 cases meeting the aforementioned requirements were found in 8,905 autopsy records of the Board of Health Laboratory. Five were classified as acute and active rheumatic fever, and the other 3 were found to be healed rheumatic lesions.

The earliest record was that of a Spaniard who died in 1908 at the age of 50 years after a residence of only eight months on the Isthmus. Autopsy revealed a healed mitral lesion. The next patient was a Negro aged 44 who died in January 1919 of active rheumatic fever after living ten years on the Isthmus. He was originally from the French West Indies. The 4 other patients with active rheumatic fever were born and had always lived on the Isthmus. Only 1 of the patients with inactive rheumatic fever was born here.

Table 1.—*Analysis of the Incidence of Rheumatic Fever in 310,718 Hospital Admissions Between Jan. 1, 1904 and Dec. 31, 1930*

	Number of Cases	Died	Post-mortem	Birthplace				Parentage			
				West Indies	Panama	United States	Elsewhere	West Indian	Panamanian	United States	Other
Acute rheumatic fever	19	5	5	3	12	3	1	10	5	3	1
Possible rheumatic fever	14	0	0	4	2	4	4	4	2	4	4
Healed lesions	3	3	3	0	1	1	1	1	0	1	1
Total	36	8	8	7	15	8	6	15	7	8	6

Table 2.—*Analysis of the Incidence of Rheumatic Fever in 228,748 Hospital Admissions Between Jan. 1, 1930 and Dec. 31, 1943*

	Number of Cases	Died	Post-mortem	Birthplace				Parentage			
				West Indies	Panama	United States	Elsewhere	West Indian	Panamanian	United States	Other
Acute rheumatic fever	80	20	14	4	65	10	1	46	21	12	1
Possible rheumatic fever	34	2	0	0	22	12	0	17	4	13	0
Healed lesions	56	28	20	7	32	15	2	30	9	15	2
Total	170	50	34	11	119	37	3	93	34	40	3

Table 3.—*Distribution of Rheumatic Fever by Age Groups Between Jan. 1, 1930 and Dec. 31, 1943*

	Number of Cases	Under 5 Years	5 to 10 Years	11 to 15 Years	16 to 20 Years	Over 20 Years	Miscellaneous
Acute rheumatic fever	80	5	32	17	13	13	18 deaths under 11 years of age
Possible rheumatic fever	34	2	8	8	7	9	2 deaths, aged 4½ and 11 years
Healed lesions	56	0	4	9	8	35	
Total	170	7	44	34	28	57	

Fourteen cases of well defined active rheumatic fever were found among 310,718 clinical records of the hospital between 1904 and 1930. Seven of the patients were of British West Indian parentage, 3 were Panamanian and 3 were born in the United States. One other was a transient Danish seaman. Eight of the 14 had been born and had always lived on the Isthmus. The earliest well defined case in this group was noted in 1910. The patient was a boy aged 12 years, born in the United States, who had lived on the Isthmus four years. An additional 14 cases resembling rheumatic fever were found during this period (table 1).

There were 228,748 admissions to Gorgas Hospital during the fourteen years that began Jan. 1, 1930 and ended Dec. 31, 1943. The hospital charts reviewed for these years showed a decided increase in the incidence of rheumatic fever. It is with this period that the statistics given here deal. Autopsy records of the Board of Health Laboratory were also studied for the same period. Since 1940 all patients have been seen by one or more of us.

A. *Active Rheumatic Fever.*—Since 1930, 80 persons were considered to have definite acute and active rheumatic fever. Twenty of this group died while in the hospital. All of the deaths were due to acute rheumatic carditis. Seventy-six of the 80 patients had definite rheumatic cardiac involvement. Two others were considered clinically to have possible cardiac involvement, but the remaining 2 had no diagnostic signs of heart damage. Fourteen of the 20 who died and in whom autopsies were performed had acute pancarditis.

Sixty-five of these 80 patients were born and had always lived on the Isthmus. Ten of the remaining 15 were born in the United States, 4 in the West Indies and 1 in Colombia. Forty-six were of West Indian parentage, 21 were Panamanians and 12 were born of white parents from the United States (table 2).

Nineteen of the 20 patients who died were born on the Isthmus. These included 12 West Indians, 5 Panamanians and 2 whose parents were born in the United States. The other one was born in Jamaica but had lived here for twenty years.

Only 5 of the 80 patients were under 5 years of age when first admitted to the hospital with rheumatic fever. Thirty-two were in the age group of 5 to 10 years, 17 were 11 to 15, 13 were between 16 and 20 and 13 were over 20. Fourteen of the deaths occurred between the ages of 5 and 10 years. Four of the 5 who were less than 5 years old died. Thus 18 of the 20 deaths from the disease occurred under 11 years of age (table 3).

Females slightly outnumbered the males, there being 43 females and 37 males. Ten females and 10 males died as the result of acute attacks of rheumatic fever.

There were 109 hospital admissions for rheumatic fever among these 80 patients, an average of 1.36 admissions per individual.

B. *Possible Active Rheumatic Fever.*—Thirty-four patients with possible acute rheumatic fever were studied (tables 2 and 3). Of these, 22 were born and had always lived on the Isthmus. There were 17 West Indians, 4 Panamanians and 1 of white United States parentage. Twelve were born in the United States and had been here from two weeks to two and a half years. Most of this transient group were soldiers.

There were 2 deaths among the 34 patients, but autopsies were not obtained. The 2 who died were West Indian girls aged 4½ and 11 years respectively. They were born on the Isthmus and died on their first hospital admission.

Only 2 patients were 4 years of age or younger at the time of their first admission. Eight were 5 to 10 years of age, 8 were 11 to 15, 7 were 16 to 20 and the remaining 9 patients were more than 20. Twenty-one were males and 13 were females.

C. *Inactive Rheumatic Valvular Lesions (Healed).*—Definite rheumatic valvular lesions were found in 56 patients who showed no evidence of rheumatic activity (tables 2 and 3). There were 28 deaths in this group. The clinical diagnosis of healed rheumatic heart disease was confirmed at autopsy on 20 patients. Ten of these had complications: 6 had subacute bacterial endocarditis due to Streptococcus viridans, 3 had acute bacterial endocarditis due to other organisms and 1 died of malaria. Among the 8 patients who died but on whose bodies autopsies were not held there were 5 who had positive blood cultures for Str. viridans and 1 for pneumococci. Two died in simple cardiac failure. In addition to these 28 deaths, there were 5 other patients among the 56 who had positive blood cultures (4 positive for Str. viridans and 1 for Staphylococcus aureus). However, they left the hospital and there is no record of autopsies. Thus there were 15 patients with subacute bacterial endocarditis (Str. viridans) superimposed on old healed rheumatic endocardial lesions.

The most common ages in which the healed valvular lesions were recognized in the Isthmus born group (32 patients) were between 11 and 20 years (17). All but 24 were born and had always lived in Panama. Fifteen were born in the United States, 7 in the West Indies, 1 in Poland, and the birthplace was unknown in the other. There were 26 males and 30 females in this group.

COMMENT

The patients classified as West Indians were of British or less frequently French West Indian parents who came to work for the Panama Canal either during early construction days or at a later period. Most of the British West Indians were of pure Negro stock, spoke English and had English surnames. Many of those who had rheumatic fever were of the second generation, their parents having been born on the Isthmus.

Panamanians were born locally and were of mixed blood, including combinations of white (usually Spanish), native Indian and black West Indian. These mestizo patients were all of the laboring class.

The isthmus of Panama is located 9 degrees north of the equator. The dry season is from January through April and the wet season from May through December. On the Pacific side of the Isthmus, where Gorgas Hospital is located, the average yearly maximum temperature is 87.3 F.; the average yearly minimum is 73 F. The average relative humidity is 83 per cent. There appeared to be no relationship between the admissions for rheumatic fever and the season of the year (rainy or dry), nor was there a significant yearly variance in the admissions for the disease.

The high percentage of cardiac involvement among the 80 patients with acute rheumatic fever may be due in part to our hesitation in classifying as active rheumatic fever those cases without some indication of cardiac damage. Only 1 patient escaped cardiac involvement of 16 with acute rheumatic fever treated in the colored pediatric ward from January 1941 to July 1943. Three of the 16 patients died of acute rheumatic pancarditis, and ten of the remaining 13 had symptoms and clinical signs of extensive cardiac damage. Nodes were not mentioned in the old charts, and more recently they have been found in only 1 patient. Chorea occurs in native born children, but those cases seen since 1940 have been mild.

Preliminary upper respiratory infections did not occur regularly in recent cases of rheumatic fever. Although scarlet fever occurs here, it is seldom seen in a severe form.[5] There is no record in the cases reviewed of acute rheumatic fever following shortly after scarlet fever.

It is apparent that rheumatic fever occurs in natives as well as in others who come to the Isthmus from elsewhere. This statement applies both to the initial attack and to recurrence of the disease. The mitral and aortic valvular lesions occur in similar proportions to cases seen in the United States (e. g. Wisconsin).[6]

It would appear from the available material that the incidence of rheumatic fever began to increase slowly about 1927 and since 1930 has become a rather common problem in the pediatric and medical wards in this hospital.

There are no tenable explanations for the increase in the incidence of the disease. The ability of the clinicians and pathologists of the earlier day precludes any assumption that the disease went unrecognized. Dr. Deeks, Dr. Darling, Dr. Connor, Dr. H. Clark, Dr. W. T. James, Dr. H. C. Dooling and Dr. L. B. Bates are to mention but a few of the well trained men who were observing cases either at the bedside or at the autopsy table between 1904 and 1930. It does not seem likely that the disease was brought to the Isthmus by workers from the United States. There has always been a regular yearly rate of travel between the Isthmus and the United States as the result of changes in personnel and in connection with vacations. There have been two main periods of influx of new employees in large numbers. The first was during the early construction days from 1904 to 1906, and the second more recent period was during 1940 and 1941. Rheumatic fever was uncommon following the first period and had ceased to be a rarity before the last. The variation in the total population does not explain the increase. The climate has not changed. Milk has not been nor is it now used abundantly by the natives, but it has always been an adequate part of the diet of children of workers from the United States. The native diets are fairly adequate, as frank deficiency diseases are extremely rare. No relationship between associated tropical diseases, e. g. intestinal parasites, malaria and yaws, has been demonstrated. Additional reports on the common occurrence of rheumatic carditis in tropical and subtropical regions have appeared in recent literature.[7]

CONCLUSION

Rheumatic fever is not uncommon in Panama. The course of the disease, as well as the resultant cardiac damage, resembles that found in the United States.

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[5] Tucker, H. A., Miller, W. C., and Kean, B. H.: Scarlet Fever on the Isthmus of Panama, to be published.

[6] Hardgrove, M.: Personal observations at Milwaukee Children's Hospital Cardiac Clinic.

[7] Suárez, R. M.: The Incidence of Heart Disease in Puerto Rico, Am. Heart J. **29:** 339 (March) 1945. Chavez, Ignacio: The Incidence of Heart Disease in Mexico, ibid **24:** 88 (July) 1942. Garcia Carrillo, E.: Rheumatic Carditis in a Tropical Country, ibid **23:** 170 (Feb.) 1942.

Clinical Notes, Suggestions and New Instruments

SUDDEN DEATH FOLLOWING INTRAVENOUS INJECTION OF THIAMINE HYDROCHLORIDE

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There have been several reports in the literature of adverse effects following the parenteral administration of thiamine hydrochloride. Most of the untoward reactions were in the nature of hypersensitivity to the vitamin, and in only one report was a death recorded. Recently another death occurred following the intravenous administration of a solution of thiamine hydrochloride, and since vitamins are now being introduced parenterally in large quantities it seems fitting to describe this case and record the autopsy findings.

REVIEW OF THE LITERATURE

Mills[1] reported the first death in man due to an intramuscular injection of thiamine hydrochloride; at autopsy multiple ecchymoses beneath the pia over both cerebral hemispheres, with areas of encephalomalacia and perivascular hemorrhages, were found. Stern[2] described a case of "vitamin B_1 poisoning" of a cat in which 20,000 international units of the vitamin were injected via cisternal puncture. In coming out of the anesthesia the animal became very irritable, with rapid respirations and nystagmus, ending in generalized convulsions. The rapid respirations were interrupted by periods of apnea, which occurred about every four minutes; the animal died in fifty minutes.

Several reactions following the parenteral injections of a solution of thiamine hydrochloride have been observed. Stern[2] found that 15,000 international units injected into the lumbar subarachnoid space was apt to produce weakness, conjunctivitis, loss of appetite, buzzing in the ears, stiffness of the muscles and slight fever. Steinberg[3] noted the development of herpes zoster on the side of the chest in 2 patients who had been given 2,000 international units of thiamine hydrochloride intravenously weekly for several weeks, and in another who had been given 1,200 international units by mouth daily for a period of two weeks. Two other patients given parenteral injections complained of nausea and a sense of constriction of the throat. Mills[4] observed symptoms similar to those of thyroid hyperactivity, namely fine and coarse muscle tremors, rapid pulse and noticeable nervous hyperirritability, in patients taking thiamine hydrochloride orally over a period of time. Laws[5] reported that a woman was given daily, then weekly, subcutaneous injections of thiamine hydrochloride. After many of these injections, and after leaving the physician's office, she would sneeze violently several times, and the site of injection would itch for several hours. Ten days elapsed before her final injection, after which she developed generalized urticaria, edema of the face, dyspnea, cyanosis and wheezing. Intracutaneous and passive transfer tests indicated that the patient was sensitive to thiamine hydrochloride. Stiles[6] observed 2 patients in whom prolonged administration of thiamine hydrochloride produced hypersensitivity to it. One patient complained of nervousness associated with flushing and tachycardia, the other a sensation of heat and profuse perspiration. Schiff's patient[7] collapsed after having received parenteral injections for several months. She had had short bouts of nausea and sneezing after several injections. Intradermal tests indicated that she was sensitive to an aqueous solution of thiamine hydrochloride. Eisenstadt[8] added 2 cases of his own to the literature in which the patients showed allergic reactions to parenteral administration of the vitamin but who were able to tolerate it orally without adverse effects. His patients were positive to the intradermal tests but negative to the passive transfer tests. He suggested, as did Laws,[5] that patients who are about to receive thiamine hydrochloride parenterally should be skin tested as a precautionary measure. One of Leitner's patients[9] developed an asthmatic-like attack with eosinophilia after a long course of parenteral injections; the other had symptoms resembling those of thyroid overdosage. Intradermal tests with thiamine were positive. Stein and Morgenstein[10] report that a young man who received large doses of thiamine hydrochloride parenterally (from 15,000 to 30,000 international units) at first several days apart, and later at approximately monthly intervals, developed itching and a large wheal at the site of inoculation after each injection. After the last injection he collapsed; he perspired profusely, was dyspneic and cyanotic and had wheezing breath sounds. He recovered the next morning, after stimulants had been given. Later an intradermal test with a saline solution of thiamine hydrochloride was positive.

REPORT OF CASE

History.—A white woman aged 25, married, who weighed 155 pounds (70 Kg.) and measured 5 feet 10 inches (178 cm.) in height, whose past history was essentially negative and who had had measles and chickenpox as a child and pneumonia many years previously, had gone to her physician complaining of nervousness, tiredness and moderate low backache. Her physician's examination was essentially negative; the blood pressure was 116/64 and the pulse rate 90.

On Oct. 1, 1945 1 cc. of a solution of 100 mg. of thiamine hydrochloride (33,330 U. S. P. units) with 0.5 per cent chlorobutanol added as a preservative was injected intravenously. Immediately following the injection the patient complained of a generalized burning and perspired moderately. Within a few minutes, however, she stated that she felt fine. She returned to her physician's office on October 4, and after stating that she had had no untoward reactions at home during the interval she was given another injection intravenously of the same preparation. This time she had no ill effects. On October 20 the injection was repeated; again there were no complaints.

On November 6 the patient returned to the physician's office and complained of being jittery. Again 1 cc. of a solution of 100 mg. of thiamine hydrochloride was introduced intravenously. This time the patient complained of a generalized burning sensation; she perspired profusely. Within a few moments she became dyspneic and cyanotic. She was given 1 cc. of a solution of 1: 1,000 epinephrine hydrochloride subcutaneously but soon lost consciousness and died. Her death occurred probably less than ten minutes after the injection of the thiamine hydrochloride had been given. Of importance was the fact that two similar injections from the same bottle had been given to 2 other patients the same day without untoward reactions.

Report of Autopsy.—The body was well developed and well nourished. In the right antecubital fossa was a small, recent area of hemorrhage in the subcutaneous tissue. Testing for air emboli revealed none in the heart. There was moderate dilatation of the right auricle and moderate fatty infiltration of the myocardium of the right and left ventricles. All lobes of the lungs were crepitant; there were a few areas of moderate firmness and granularity. The abdominal organs were hyperemic. In the brain there was a moderate hyperemia.

Microscopically the important features were the dilatation and engorgement of the veins and sinusoids of the viscera and the changes seen in the lungs. Besides the engorgement of the

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From the Department of Pathology, University of Southern California School of Medicine, and the Coroner's Office of the County of Los Angeles.

[1] Mills, C. A., in Discussion on Vitamin Therapy, J. A. M. A. **117:** 1501 (Nov. 1) 1941.

[2] Stern, E. L.: The Intraspinal Injection of Vitamin B_1 for the Relief of Intractable Pain, Am. J. Surg. **39:** 495 (March) 1938.

[3] Steinberg, C. L.: Untoward Effects Resulting from the Use of Large Doses of Vitamin B_1, Am. J. Digest. Dis. **5:** 680 (Dec.) 1938.

[4] Mills, C. A.: Thiamine Overdosage and Toxicity, J. A. M. A. **116:** 2101 (May 3) 1941.

[5] Laws, C. L.: Sensitization to Thiamine Hydrochloride, J. A. M. A. **117:** 176 (July 19) 1941.

[6] Stiles, M. H.: Hypersensitivity to Thiamine Chloride, J. Allergy **12:** 507 (July) 1941.

[7] Schiff, Leon: Collapse Following Parenteral Administration of Solution of Thiamine Hydrochloride, J. A. M. A. **117:** 609 (Aug. 23) 1941.

[8] Eisenstadt, W. S.: Hypersensitivity to Thiamine Hydrochloride, Minnesota Med. **25:** 861 (Nov.) 1942.

[9] Leitner, Z. A.: Untoward Effects of Vitamin B_1, Lancet **2:** 474 (Oct. 16) 1943.

[10] Stein, W., and Morgenstein, M.: Sensitization to Thiamine Hydrochloride, Ann. Int. Med. **20:** 826 (May) 1944.

pulmonary vessels there were areas of emphysema in which the alveoli were overdistended and the septums ruptured. Occasional alveoli disclosed numerous brown pigmented macrophages suggestive of previous hemorrhages. The septums in many areas were thickened and infiltrated with a few polymorphonuclear leukocytes and round cells. The bronchioles were dilated in some areas and collapsed in others: there was some desquamation of the bronchiolar epithelium and infiltration of round cells into the walls.

COMMENT

We believe that this case is an example of death due to anaphylactic shock. The anaphylactogen was thiamine hydrochloride.

In order to achieve active anaphylaxis, the following conditions must be fulfilled: (1) the preparatory or anaphylactizing contact, (2) an appropriate period of latency, during which the organism produces antibodies, and (3) the subsequent, eliciting contact.[11] The allergization takes place as the result of numerous repeated exposures to the antigen.

The requirements for the production of active anaphylaxis, hence, were met in this patient. She had received three previous injections of the anaphylactogen; the necessary period of latency occurred; the eliciting contact was followed by death.

Anaphylaxis in human beings may evoke a variety of clinical manifestations; it is assumed that these manifestations are due to the antigen-antibody reaction either in the smooth muscle or in the capillary endothelium. In the guinea pig the characteristic feature is bronchial constriction and asphyxiation, in the rabbit constriction of pulmonary arteries and right heart failure, and in the dog fall in blood pressure.[12]

Pathologically the anaphylactic shock in this patient probably manifested itself in constriction of the pulmonary arteries with the production of pulmonary engorgement and right heart dilatation and failure. There apparently was an associated constriction of bronchioles and consequently a mild emphysema. Of interest was the finding of small foci of polymorphonuclear leukocytes and round cells in thickened septums, giving the picture of an early interstitial pneumonia. The numerous pigmented macrophages present in several alveoli might have been the result of small hemorrhages occurring after the previous anaphylactizing injections.

It is unlikely that the preservative, chlorobutanol, constituted the anaphylactogen; the amount present in the solution was extremely small. Besides, previous authors [13] had found that their patients were hypersensitive to an aqueous solution of the vitamin but not to chlorobutanol. Furthermore, it is unlikely that pyrogens were present in the vitamin preparation, since 2 other patients had been given the same preparation on the same day without ill effects.

Vitamins, like other foodstuffs, are best taken by mouth. Where parenteral administration of thiamine hydrochloride is justified, skin tests of the patient using the vitamin preparation as the allergen should be done.

CONCLUSIONS

1. Sudden death followed an intravenous injection of a solution of thiamine hydrochloride.
2. The patient had been given four injections at frequent intervals prior to death. Following the last injection she complained of a generalized burning, perspired profusely, became dyspneic and cyanotic and soon died.
3. The death is considered an example of an anaphylactic shock, the thiamine hydrochloride being the anaphylactogen.
4. Pathologically, the anaphylaxis probably manifested itself in constriction of the smooth muscles of the pulmonary arteries and bronchioles, resulting in pulmonary engorgement and right heart dilatation and failure, and in mild pulmonary emphysema, respectively. In addition, small foci of polymorphonuclear leukocytes and round cells were seen in thickened septums of pulmonary alveoli. Foci of pigmented macrophages probably indicated that previous hemorrhages had occurred following an anaphylactizing injection.

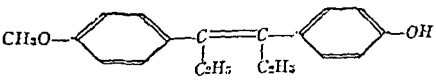
Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

MONOMESTROL.—Mestilbol.—Diethylstilbestrol monomethyl ether. — 3-*p*-Hydroxphenyl-4-*p*-methoxyphenyl-3-hexene. —*a,a'*-Diethyl-4'-methoxy-4-stilbenol. — $C_{19}H_{22}O_2$ (Molecular weight 282.37). Monomestrol may be represented by the following structural formula:



It may be prepared by methylation of diethylstilbestrol or by partial demethylation of the dimethyl ether of diethylstilbestrol. The crude product may be purified by distillation in vacuum and recrystallization from water-alcohol or from benzene-petroleum ether mixtures.

Actions and Uses.—Monomestrol is used for the same conditions for which estrogenic substances are employed, and the contraindications are essentially the same. Like other estrogens, it must be individualized since each patient presents special problems. Patients undergoing treatment should remain under constant medical supervision. Side effects are rare, but when they do occur they are usually mild, although in a few instances it may be necessary to reduce the dosage temporarily.

Dosage.—The average oral dose for the treatment of menopausal symptoms is 0.5 to 1 mg. daily by mouth, although if necessary 10 to 25 mg. may be given parenterally biweekly. Dosage for atrophic genital disorders such as kraurosis vulvae include 1 to 5 mg. daily by mouth or 25 mg. weekly by parenteral injection; for gonorrheal vaginitis of children 0.25 mg. daily; for the prevention of breast engorgement 5 to 10 mg. daily or 25 mg. the first and third days by injection; for suppression of lactation 10 mg. two or three times daily, or 25 mg. daily by injection; for prostatic cancer 2.5 mg. three times daily by mouth. The duration of treatment varies and may last for several months or even two or three years in the treatment of the menopause, a few weeks for gonorrheal vaginitis in children, a few months for atrophic genital disorders, three to five days for prevention of breast engorgement and suppression of lactation or be continuous for prostatic cancer.

Tests and Standards.—

Monomestrol occurs as an odorless, white, crystalline powder, which melts at 116-117.5 C. when recrystallized from benzene-petroleum ether (112-114 C., when recrystallized from alcohol). It is soluble in alcohol, freely soluble in acetone and in ether and practically insoluble in water, in dilute mineral acids and in dilute aqueous solutions of sodium and potassium hydroxide. It may be dissolved in vegetable oils and in dilute solutions of sodium or potassium hydroxide in 50 per cent ethanol.

To 1 mg. of monomestrol dissolved in 5 cc. of alcoholic potassium hydroxide add diluted hydrochloric acid to neutralize the solution and then add 1 cc. in excess. Add 1 cc. of molybdophosphotungstate reagent and shake. Allow to stand ten minutes, dilute to 25 cc. with water and add 5 cc. of saturated sodium carbonate solution: a blue color develops on standing. Add a few drops of 50 per cent solution of antimony pentachloride in dry *alcohol-free* chloroform to a dilute solution of monomestrol in the same solvent: a red colored solution is produced which changes rapidly to purple *(distinction from hexestrol, which gives no color).*

Dissolve 10 mg. of monomestrol in 5 cc. of concentrated sulfuric acid: an orange color is produced which disappears on dilution with water *(distinction from hexestrol and benzestrol, which give no color).*

Dry an accurately weighed specimen of monomestrol at 100 C. for four hours: the loss does not exceed 0.5 per cent. Ignite an accurately weighed specimen of monomestrol after the addition of concentrated sulfuric acid: the sulfated ash residue is not more than 1 per cent.

Transfer 0.1 Gm. of monomestrol to a 100 cc. volumetric flask and dilute to the mark with carbon tetrachloride. Transfer 10 cc. of the solution to a 250 cc. iodine flask fitted with an accurately ground stopper; add the calculated quantity plus 1 cc. of tenth-normal bromide-bromate solution (prepared according to the U. S. P. XII, p. 749); wash the walls of the flask and wet the stopper by the addition of 10 cc. of distilled water. Quickly add 10 cc. of 10 per cent hydrochloric acid and insert the wet stopper. Shake the mixture thoroughly for several minutes, then set aside in the dark at 30 C. and shake intermittently for exactly fifty minutes. At the end of this period place 2 cc. of 40 per cent potassium iodide solution around the stopper. Remove the stopper just enough to allow the potassium iodide solution to enter the flask, shake thoroughly, rinse the stopper and sides of the flask with distilled water, add 25 cc. of carbon tetrachloride and titrate with fiftieth-normal sodium thiosulfate to the disappearance of the pink color in the carbon tetrachloride. Each cubic centimeter of tenth-normal bromide-bromate solution is equivalent to 4.706 mg. of monomestrol. The monomestrol content is not less than 99 per cent.

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[11] Urbach, E.: Allergy, New York, Grune and Stratton, 1943, p. 97.

[12] Feinberg, S.: Allergy in Practice, Chicago, Year Book Publishers, 1944, p. 37.

[13] Laws,[7] Schiff,[6] Eisenstadt,[8] Leitner,[9] Urbach.[11]

nature of the reaction between bromine and monomestrol leads to complications unless the conditions of a given procedure are strictly observed. This method of standardization must be considered tentative until more accurate analytic procedures are available.

The following dosage forms have been accepted:

Wallace & Tiernan Products, Inc., Belleville, N. J.

Tablets Monomestrol: 0.25 mg., 0.5 mg., 1.0 mg., 2.5 mg. and 5.0 mg.

Solution Monomestrol 10 mg. and 25 mg. per cc. (in Sesame Oil): 1 cc. ampuls.

PROCAINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1945, p. 97).

The following dosage form has been accepted:

George A. Breon & Co., Inc., Kansas City, Mo.

Solution Procaine Hydrochloride 2% W/V: 30 cc. vials. Each cubic centimeter contains 20 mg. procaine hydrochloride in isotonic solution of sodium chloride with chlorobutanol 0.5 per cent as a preservative.

PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA TOXOID (See The Journal, Jan. 5, 1946, p. 31).

The following dosage form has been accepted:

Parke, Davis & Co., Detroit

Diphtheria Toxoid-Pertussis Vaccine Mixed (Sauer): 6 cc. vials (one immunization) and 24 cc. vials (four immunizations).

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report: Howard A. Carter, *Secretary.*

SUN-KRAFT COLD QUARTZ ULTRAVIOLET RAY THERAPY LAMP NOT ACCEPTABLE

Manufacturer: Sun-Kraft Incorporated, Sun-Kraft Building, 215-217 West Superior Street, Chicago 10.

In the issue of The Journal dated June 19, 1943, page 505, the Council on Physical Medicine published a report setting forth its reasons for proclaiming the Sun-Kraft Lamp unacceptable as a "sun lamp."

In view of the renewed inquiries regarding this device the Council has given further consideration to the acceptability of the Sun-Kraft Lamp, which is now labeled "Cold Quartz Ultraviolet Ray Therapy Lamp."

Construction.—The Sun-Kraft Cold Quartz Ultraviolet Ray Therapy Lamp, Model A-1, consists of a quartz tube about 6 inches (15 cm.) long and about ½ inch (1.2 cm.) in diameter containing a globule of mercury. The quartz tube is supported in a small semicylindric, chromium plated reflector. It is energized by radio frequency current, without internal wires. In the sample tested, when operated on 110 volts alternating current, the lamp consumed 26 watts, in close agreement with the claims made for it.

A small folder entitled "Sun-Kraft Cold Quartz Ultraviolet Ray Therapy Lamp" emphasizes that "it is not a Sun Lamp because its radiation of 95 per cent ultraviolet rays" [presumably the biologically effective component ultraviolet of wavelengths shorter than 3,200 angstroms is meant] are always cold and always constant in intensity, no matter how long or how often it is used." "Sun-Kraft ultraviolet rays are cold, purposely so, because heat dissipates ultraviolet rays"—an absurd claim. The peak of intensity at 2,537 angstroms is stated to be important as "it induces vitamin D production and is a powerful germicidal agent." The following are some of the questionable statements made in this folder: "The intensity is kept low to minimize any danger of overexposure." "Compilation of many years of medical research proves conclusively that ultraviolet rays, invisible to the human eye, kill bacteria, induce vitamin D, strengthen bones and teeth, and help the body resist ailments." "Ultraviolet rays stimulate circulation and aid in relieving discomforts, pain caused by respiratory ailments, such as head colds, sinus, bronchitis, asthma, hay fever, etc." "Medical science also states that ultraviolet rays aid in relieving arthritis and muscular pains. . . ." Some of these claims are either exaggerated or misleading as applied to this lamp; others are not acceptable in sales promotion.

In a booklet on "How to Use Your Sun-Kraft Cold Quartz Ultraviolet Therapy Lamp" indications are given for use of the lamp in (*a*) producing vitamin D; (*b*) treating acne, eczema, psoriasis, athlete's foot; (*c*) treating respiratory conditions, asthma, sinus, bronchitis, hay fever, catarrah and colds, by exposure to ultraviolet rays and, in addition, by *inhaling ozone* by placing the nose close to the back side of the reflector, six to twelve minutes, twice per day; (*d*) treating arthritis, rheumatism and neuritis; (*e*) producing an even facial burn (tanning); (*f*) treatment of hair and scalp; (*g*) irradiation of children; (*h*) activation of vitamin D in milk and food products, and (*i*) sterilization of air. For the latter purpose it is asserted that the ultraviolet rays and activated ozone will sterilize your room, reducing the bacterial content of the air; also that Sun-Kraft serves as a larva destroyer and deodorizer of your wardrobe closet. All of these are unwarranted or exaggerated claims. In this booklet the novel, physically absurd, assertion is made that "powerful 'Sun-Lamps' mix their ultraviolet rays with intense visible light and heat rays, which dissipate most of the ultraviolet rays before they reach the body." It is further asserted that "ultraviolet rays are eagerly absorbed by the air; the further you are from the quartz tube the less effective the rays." The latter part of this assertion is true; but absorption by the air is not the real cause of the loss in effectiveness, which is due to the rapid decrease in intensity with distance from the lamp.

Because of the low intensity it is recommended to operate the lamp at 6 inches or less. To determine the best timing and distance for each individual, an exposure of one minute at a distance of 1 inch from the edge of the reflector is recommended, two minutes at 2 inches and six minutes at 6 inches. This is just the reverse of trials with powerful ultraviolet lamps where a great distance is used in the first trials to prevent burns from overexposure.

Radiometric measurements on a Sun-Kraft lamp, made in a physical laboratory acceptable to the Council, showed that at distances of 6 inches (15 cm.) and shorter the field of irradiation was very nonuniform in intensity because of focusing of images of the quartz tube by the reflector. This nonuniformity was in three long, narrow bands (each one less than 2 cm. in width) differing by 15 to 20 per cent or more in intensity. Moreover, the total field of irradiation was small (about 10 by 20 cm.).

The following intensities, measured at right angles to the cylindric axis of the lamp (on 26 watts), were observed: at 3 inches, 190 microwatts per square centimeter; at 6 inches, 83 microwatts per square centimeter; at 24 inches (which is the minimum acceptable operating distance), 6 microwatts per square centimeter. The latter value is only one sixth of the specified minimum value (36 microwatts per square centimeter for cold quartz lamps) as required for acceptability by the Council for use as a therapeutic lamp. The ultraviolet output is about one tenth of the minimum value acceptable for use as a disinfecting lamp, and only about one fifteenth the intensity of the ultraviolet lamps used for disinfecting purposes. Exposure of the untanned inner forearm at 6 inches (15 cm.) from the lamp produced a minimum perceptible erythema in twelve to fourteen minutes in agreement with the radiometric measurements close to the lamp.

The radiometric findings show that the ultraviolet output of the Sun-Kraft model A-1 lamp, in total intensity, does not meet the Council's requirements for acceptability for use either (1) as a sun lamp (also in spectral quality) for home use or (2) as a therapeutic lamp prescribed by a physician for home use or (3) as an ultraviolet disinfecting lamp.

Furthermore, in addition to the foregoing shortcomings, because of the scientifically incorrect, misleading (even the name "Sun-Kraft" is misleading), and unfair sales promotion; the unsubstantiated claims made; and also because of the recommended inhalation of ozone, which is known to be highly toxic and irritating to the bronchial tract, the Council on Physical Medicine reiterates its declaration of unacceptability of the Sun-Kraft Cold Quartz Ultraviolet Ray Therapy Lamp for inclusion in its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, FEBRUARY 23, 1946

THE AMERICAN MEDICAL ASSOCIATION HEALTH PROGRAM AND PREPAYMENT SICKNESS INSURANCE PLANS

At the annual session of the American Medical Association in Chicago in December the House of Delegates adopted a resolution instructing "the Board of Trustees and the Council on Medical Service and Public Relations to proceed as promptly as possible with the development of a specific national health program, with emphasis on the nationwide organization of locally administered prepayment medical plans sponsored by medical societies."

At a series of meetings held in Chicago beginning February 13 the Board of Trustees and the Council on Medical Service completed considerations which made possible a long step toward protecting the American people against the costs of sickness.

The fundamental step in the development of this plan was the establishment of standards of acceptance for medical care plans which have the approval of the Council on Medical Service of the American Medical Association. Any plan which meets the standards of the Council will be entitled to display the seal of acceptance of the American Medical Association on its policies and on all of its announcements and promotional material. In order to qualify for acceptance, the prepayment plan must have the approval of the state or county medical society in the area in which it operates. The medical profession in the area must assume responsibility for the medical services included in the benefits. Plans must provide free choice of a qualified doctor of medicine and maintain the personal, confidential relationship between patient and physician. The plans must be organized and operated to provide the greatest possible benefits in medical care to the subscriber.

Medical care plans may be in terms of either cash indemnity or service units, with the understanding that benefits paid in cash are to be used to assist in paying the costs incurred for medical service. The standards also include provisions relative to the actuarial data that are required, systems of accounting, supervision by appropriate state authorities and periodic checking and reporting of the progress of the plan to the Council.

Coincidentally with the announcement of these standards of acceptance there was organized, as a voluntary federation, an organization known as Associated Medical Care Plans, Inc. This independent association will include as members all plans that meet the minimum standard of the Council on Medical Service of the American Medical Association. The Associated Medical Care Plans will undertake to establish coordination and reciprocity among all of these plans to permit transference of subscribers from one plan to another and use of the benefits in any state in which a subscriber happens to be located. Under this method great industrial organizations with plants in various portions of the United States will be able to secure coverage for all their employees. Moreover, it will be possible for the Veterans Administration, welfare and industrial groups and government agencies to provide coverage for the people in any given area through a system of national enrolment. In addition the Associated Medical Care Plans, Inc., will undertake research and the compilation of statistics on medical care, provide consultation and information services based on the records of existing plans and engage in a great campaign of public education as to the medical service plan movement under the auspices of state and county medical societies.

The Board of Trustees of the American Medical Association also announced establishment of a Division of Prepayment Medical Care Plans with a director and a staff who will administer the activities related to the promotion and development of medical care plans in all the states.

In announcing these proposals for a nationwide provision of sickness insurance on a mutual nonprofit basis, the Board also presented a complete health program with ten points, which include the development of services in the field of preventive medicine, maternal and child health, voluntary prepayment plans for protection against the costs of sickness, compensation for loss of wages due to illness, the care of the veteran and the development of a high standard of housing, nutrition, clothing and recreation.

The American Medical Association last June through its Board of Trustees and Council on Medical Service announced a fourteen point program to improve the health and medical care situation in the United States. In October 1945 the interpretation of these fourteen points and methods of implementation were adopted by the Council on Medical Service. In December 1945 the House of Delegates approved the whole program, suggested its rearrangement and directed the Board of Trusteees to keep the program constantly up to date so that it will stay at least even with and, if possible, a step ahead of the needs of the public.

With this in mind the Board of Trustees has adopted a restatement of the fourteen point program, which clarifies still further the position of the American Medical Association on some of these points and brings into the program more definitely maternal and child welfare, medical research, the medical care of the veteran and the part to be played by the voluntary health agencies.

This restatement follows:

National Health Program of The American Medical Association

1. The American Medical Association urges a minimum standard of nutrition, housing, clothing and recreation as fundamental to good health and as an objective to be achieved in any suitable health program. The responsibility for attainment of this standard should be placed as far as possible on the individual, but the application of community effort, compatible with the maintenance of free enterprise, should be encouraged with governmental aid where needed.

2. The provision of preventive medical services through professionally competent health departments with sufficient staff and equipment to meet commmunity needs is recognized as essential in a health program. The principle of federal aid through provision of funds or personnel is recognized with the understanding that local areas shall control their own agencies as has been established in the field of education. Health departments should not assume the care of the sick as a function, since administration of medical care under such auspices tends to a deterioration in the quality of the service rendered. Medical care to those unable to provide for themselves is best administered by local and private agencies with the aid of public funds when needed. This program for national health should include the administration of medical care, including hospitalization to all those needing it but unable to pay, such medical care to be provided preferably by a physician of the patient's choice with funds provided by local agencies with the assistance of federal funds when necessary.

3. The procedures established by modern medicine for advice to the prospective mother and for adequate care in childbirth should be made available to all at a price that they can afford to pay. When local funds are lacking for the care of those unable to pay, federal aid should be supplied with the funds administered through local or state agencies.

4. The child should have throughout infancy proper attention, including scientific nutrition, immunization against preventable disease and other services included in infant welfare. Such services are best supplied by personal contact between the mother and the individual physician but may be provided through child care and infant welfare stations administered under local auspices with support by tax funds whenever the need can be shown.

5. The provision of health and diagnostic centers and hospitals necessary to community needs is an essential of good medical care. Such facilities are preferably supplied by local agencies, including the community, church and trade agencies which have been responsible for the fine development of facilities for medical care in most American communities up to this time. Where such facilities are unavailable and cannot be supplied through local or state agencies, the federal government may aid, preferably under a plan which requires that the need be shown and that the community prove its ability to maintain such institutions once they are established (Hill-Burton bill).

6. A program for medical care within the American system of individual initiative and freedom of enterprise includes the establishment of voluntary nonprofit prepayment plans for the costs of hospitalization (such as the Blue Cross plans) and voluntary nonprofit prepayment plans for medical care (such as those developed by many state and county medical societies). The principles of such insurance contracts should be acceptable to the Council on Medical Service of the American Medical Association and to the authoritative bodies of state medical associations. The evolution of voluntary prepayment insurance against the costs of sickness admits also the utilization of private sickness insurance plans which comply with state regulatory statutes and meet the standards of the Council on Medical Service of the American Medical Association.

7. A program for national health should include the administration of medical care, including hospitalization, to all veterans, such medical care to be provided preferably by a physician of the veteran's choice, with payment by the Veterans Administration through a plan mutually agreed on between the state medical association and the Veterans Administration.

8. Research for the advancement of medical science is fundamental in any national health program. The inclusion of medical research in a National Science Foundation, such as proposed in pending federal legislation, is endorsed.

9. The services rendered by volunteer philanthropic health agencies such as the American Cancer Society, the National Tuberculosis Association, the National Foundation for Infantile Paralysis, Inc., and by philanthropic agencies such as the Commonwealth Fund and the Rockefeller Foundation and similar bodies have been of vast benefit to the American people and are a natural outgrowth of the system of free enterprise and democracy that prevail in the United States. Their participation in a national health program should be encouraged, and the growth of such agencies when properly administered should be commended.

10. Fundamental to the promotion of the public health and alleviation of illness are widespread education in the field of health and the widest possible dissemination of information regarding the prevention of disease and its treatment by authoritative agencies. Health education should be considered a necessary function of all departments of public health, medical associations and school authorities.

During the coming weeks the Council on Medical Service will announce the activities that will be followed toward promoting the prepayment medical care plan and also the standards of acceptance that have been developed for such plans. The Division of Prepayment Medical Care Plans in the headquarters office will soon be active in aiding the development of plans in areas which do not now have them and in coordinating existing plans.

The policies of the Association as expressed in the National Health Program may well suggest to legislators in the Senate and in the House the point of view of the medical profession as to the part that the federal government can play in extending necessary medical services to those who do not now have them.

ANIMAL EXPERIMENTATION

An intensification of the fight to cripple or destroy medical research by legislative prohibition of animal experimentation met its first defeat recently in the New York legislature. This conflict has been waged perennially; in some states the convening of the legislature is virtually a date to include on the medical school calendar, like the opening of the fall school session or the dates of the Christmas vacation period. Efforts to hamper or prevent animal experimentation by law are now under way in several other states, including Massachusetts and in Washington, D. C. (by Congressional action).

In New York round one was won for medical science by the effective combined efforts of the New York State Medical Society, the New York Academy of Medicine, the New York State county medical societies, the medical schools of the state and others. A telling incident in the publicity campaign was the public awarding of citations by Surgeon General Norman T. Kirk to Trixie and Josie, two dogs descended from those employed by Dr. George H. Whipple in his Nobel prize winning experiments on liver diets in blood regeneration.

The threat to medical progress by interference with animal experimentation should be met at the national level by a strong organization whose influence can supplement and coordinate local activities and maintain a continuous program of educating the public regarding the necessity, the humane character and the fruits of animal experimentation in medicine and biology. Such an organization is now under way. Under the auspices of the Association of American Medical Colleges and with the cooperation of other groups a nationwide organizing board of directors has been selected. This group met in Chicago February 11 at the time of the Congress on Medical Education and Licensure, selected the tentative name National Society for Medical Research, elected Dr. A. J. Carlson chairman and Dr. Andrew C. Ivy secretary and appointed an executive committee consisting of the chairman, the secretary and Drs. C. Sidney Burwell, Eben J. Carey, L. R. Chandler, Victor Johnson and Chauncey D. Leake. The formulation of policies and procedures was also commenced and the decision reached to employ a full time executive secretary. The materials and financial resources of the Friends of Medical Research of the state of New York have been pledged to the new organization, and many medical schools have given support and funds. Additional support must come from other medical schools, state and county medical societies, academies of medicine, national professional organizations in biology and medicine, the ethical drug houses and physicians and scientists generally.

Although medical schools have pledged at least temporary financial aid, the major financial support will be forthcoming from other sources. The experience in New York and elsewhere demonstrated that funds in large amounts can be raised for a national organization.

At the December meetings the House of Delegates of the American Medical Association approved the education of the public in the benefits both to men and to animals from animal experimentation and urged that the people of the United States be completely and thoroughly informed as to these benefits and as to the effect on further progress in research on various diseases, should such animal experimentation be forbidden in any state. Cooperation with the national movement was also urged by the House of Delegates. The Board of Trustees has authorized the development of effective campaign literature and its widest possible dissemination.

FOLIC ACID THERAPY

In 1935 Day and his associates[1] of the University of Arkansas reported that young rhesus monkeys given a diet consisting of casein, polished rice, whole wheat, salt mixture, cod liver oil and ascorbic acid develop a syndrome characterized by anemia, leukopenia, loss of weight, diarrhea and ulceration of the gums. Death usually occurs between the twenty-sixth and the one hundredth day. Supplementation of this diet with riboflavin, nicotinic acid or thiamine hydrochloride, given either alone or in combination, does not prevent the development of this lethal deficiency disease. If the daily deficiency diet is supplemented with either 10 Gm. of dried brewers' yeast or 2 Gm. of liver extract, however, normal body growth and a normal blood picture are maintained over a long period. From these experiments it seemed that yeast and liver extract contain an unknown substance essential to the nutrition of monkeys. For this unknown nutritional factor the Arkansas clinicians proposed the term vitamin M.

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[1] Day, P. L.; Langston, W. C., and Shukers, C. F.: J. Nutrition 9:637 (May) 1935.

Five years later Snell and Peterson[2] of the University of Wisconsin showed that a certain "norite eluate factor" extractable from yeast or from liver extract is essential for the growth of Lactobacillus casei. It was afterward found[3] that this L. casei factor is curative of vitamin M deficiency in monkeys and necessary for normal growth and hemoglobin formation in chicks. A crystalline folic acid apparently identical with this L. casei factor was recently synthesized by Angier and his associates[4] of the Lederle Laboratories and made available for clinical trial.

The similarities of the sprue syndrome in man to the manifestations of vitamin M deficiency in monkeys led Darby and his associates[5] of Vanderbilt University to test the therapeutic value of synthetic folic acid in 3 human cases. The 3 cases were of moderate severity and had persisted for from three to ten months. Each was characterized by sore mouth, diarrhea, weakness and loss of weight of 34 to 38 pounds (15 to 17 Kg.). There was increased fat in the stools (37 per cent of dried weight), macrocytic anemia and moderate leukopenia. There was impairment of absorption, as indicated by flat oral glucose and vitamin A tolerance curves. The clinical observations otherwise fulfilled all criteria generally accepted for the diagnosis of nontropical sprue.

These patients were given daily intramuscular injections of 15 mg. of synthetic folic acid as the sole therapeutic agent. By the fourth day symptoms of glossitis had disappeared. Definite hematologic improvement was noted by the ninth day, accompanied by regeneration of the lingual papillae, subsidence of the diarrhea and considerable gain in weight. Oral glucose and vitamin A tolerance curves became more nearly normal. The striking and rapid response of these patients led Darby to confirm the belief that synthetic folic acid is identical with, or closely allied to, the substance in liver extract which is effective in the treatment of sprue.

Detailed studies of the therapeutic value of folic acid in other types of anemia are reported in this issue by Spies[6] and his associates of the Hillman Hospital, Birmingham, Ala. These clinicians tested 45 clinical cases. They found that synthetic folic acid given either parenterally or orally is effective in producing significant hemopoietic response in persons with nutritional macrocytic anemia and with macrocytic anemia of pellagra, pernicious anemia, sprue or pregnancy. They found it ineffective, however, with aplastic anemia, iron deficiency anemia and anemia associated with leukemia. Whether or not folic acid is otherwise a full therapeutic substitute for liver extract they were unable to determine from their present clinical data.

THE ARMY'S PHYSICAL STANDARDS FOR INDUCTIONS

In the propaganda for a change in the nature of the practice of medicine, those who support government controlled medical care have emphasized chiefly up to now the number of men rejected by the armed forces as unfit for military service. Even President Truman, in sending his health message to Congress, dwelt considerably on these figures. Now the Army has suddenly lowered the physical standards for induction under the Selective Service; it will accept for induction men with the following physical defects previously listed as unqualified for military service:

> Lateral deviation of the spine from the midline of more than 1 inch and less than 2 inches; history of thyroidectomy for toxic goiter with complete absence of active manifestations for two years; hernia, inguinal, which has not descended into the scrotum; hernia, femoral; individuals with local paralyses such as those due to poliomyelitis or nonprogressive disease of the peripheral nerves of such degree that they disqualify for general military service but have not interfered with locomotion and have not prevented the individual from successfully following a useful vocation in civil life; stuttering or stammering of a degree disqualifying for general military service but which has not prevented the man from successfully following a useful vocation in civil life; mild neuroses; moderate transient psychoneurotic reaction, and mental deficiencies, mild in degree.

Thus the Army suddenly deprives these propagandists of one of their main arguments. The number of men rejected becomes considerably less; many men who would have been rejected under previous standards are now considered fit. THE JOURNAL has insisted again and again that the arguments of Senators Murray and Wagner and Congressman Dingell, who also emphasized the draft statistics, were without scientific foundation. Now the Army has proved them without scientific foundation. When a nation selects the highest standard of fitness for military service that any nation has ever established, people need not be surprised if the number of rejections is greater than those of nations whose standards are considerably lower. The public has little or no knowledge of the measuring stick that was used. Now the fact that the Army can change its measuring stick any time it wants to do so becomes clearly apparent.

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[2] Snell, E. E., and Peterson, W. H.: J. Bact. **39:** 273 (March) 1940.

[3] Day, P. L.; Mims, Virginia; Totter, J. R.; Stokstad, E. L. R.; Hutchings, B. L., and Sloane, N. H.: J. Biol. Chem. **157:** 423 (Jan.) 1945.

[4] Angier, R. B., and others: Science **192:** 227 (Aug. 31) 1945.

[5] Darby, W. J., and Jones, E.: Proc. Soc. Exper. Biol. & Med. **60:** 259 (Nov.) 1945. Darby, W. J.; Jones, E., and Johnson, H. C.: Science **103:** 108 (Jan. 25) 1946.

[6] Spies, T. D.: Effect of Folic Acid on Persons with Macrocytic Anemia in Relapse, this issue, p. 474.

Current Comment

NEUROLOGIC COMPLICATIONS OF MENINGOCOCCIC MENINGITIS

Neurologic sequels of meningococcic meningitis such as paralysis; deafness, deaf mutism or aphasic difficulties are frequent. The most common late complication is chronic hydrocephalus. Bailey[1] recently reported 4 cases in which neurologic complications followed the suppression of suppurative meningitis by sulfonamides or penicillin. In all the course of events was much the same: an acute purulent infection was controlled or cured by administration of sulfonamides or penicillin, but death or some serious neurologic disturbance developed. These therapeutic agents, Bailey says, do not exert any restraining influence on the fibroblasts which organize the exudate surrounding the meninges. The result is the formation of a dense scar through which the cerebrospinal fluid cannot circulate. The contraction of this scar tissue may constrict blood vessels and pathways essential to proper functioning of the nervous system. He does not suggest that these drugs be discarded in the treatment of suppurative leptomeningitis but offers a plea for early diagnosis and intensive therapy before a massive exudate has occurred. The prognosis in these cases is uncertain.

SLEEP DISTURBANCES OF CENTRAL ORIGIN

The evidence that lesions at the corticodiencephalic level are responsible for pathologic disturbances in sleep is scanty. Recently Davison and Demuth[1] studied 25 cases in which pathologic disturbances in the sleep mechanism was an important symptom. In 16 of these cases the hypothalamus was compressed and in all of them pathologic changes were found in the nerve cells of the hypothalamus. In 4 additional cases invasion of the hypothalamus with tumor cells had occurred, and in 1 there was partial destruction of the hypothalamus. Two cases showed compression of the hypothalamus with changes in the nerve cells; in 2 there was no compression of the hypothalamus or nerve cell changes. Compression or invasion of the basal ganglions existed in 16 cases in which there was also compression or invasion of the hypothalamus. Tumors were found in the suprasellar region in 3 cases, and these were included because of the involvement of the hypothalamus or its pathways. Increased intracranial pressure was found in 18 cases and was absent in 7. Diplopia, ptosis, weakness of ocular movements and impairment of conjugate deviation were found in 4 cases. Hypothermia was present in 4 cases. As a result of these and other investigations certain afferent and efferent connections concerned with sleep mechanisms were postulated: 1. The medial forebrain bundle (part of the hippocampohypothalamic tract, running between the ventromedial olfactory correlation areas of the cortex and the preoptic and hypothalamic areas; there is some evidence for the passage of a septohypothalamic tract via this bundle. 2. Corticohypothalamic fibers, via the fornix, arising in the hippocampus and ending in the medial and lateral mamillary nuclei and in the adjacent rostral portion of the tuber cinereum. 3. Inferior thalamic peduncle; fibers connecting the cortex and the hypothalamus via this peduncle probably originate in the frontal, temporal and hippocampal convolutions. 4. Hypothalamocortical fibers; such connections have not been demonstrated, but their existence is probable.

NORTH CAROLINA'S PROPOSAL FOR HOSPITAL AND MEDICAL CARE

In a handsome brochure addressed to the people of North Carolina,[1] a commission composed of physicians and leading citizens from other walks of life, including some representatives of the clergy, issue a "statement and appeal to the people of the state." The appeal is based on a number of committee recommendations concerning the proposal for North Carolina of a four year medical school, the meeting of hospital and medical needs of urban and industrial populations, the hospital and medical care of rural populations and the special needs of the Negro population. Each of these areas has been studied by a special subcommittee, and in addition studies were made of hospital and medical programs in other states. The commission concludes that North Carolina has three primary needs: more doctors, more hospitals and more insurance. A convincing case is made in the brochure for the need for more doctors and better distribution. Significant is endorsement of cooperation between North Carolina and adjoining states in establishing a regional medical school for Negroes. The commission also points out convincingly the need for hospitals. Support is given to the Blue Cross hospitalization plan, and the commission expresses its belief that every citizen needs to realize that it is just as important to have insurance against sickness disasters as against fire disasters.

ERYTHROBLASTOSIS FETALIS

Nine cases of erythroblastosis fetalis have been reported by Polayes and Ohlbaum.[1] In each instance the mother belonged to blood group O and the infant belonged to blood group A. The mother's serum showed abnormally high anti-A agglutinin titers. The Rh factor and the Hr antigen were eliminated as possible immunizing antigens in each case. Most of the infants had a relatively mild form of hemolytic disease of the newborn, but 2 of the 9 infants died. Postmortem examination showed the anatomic changes characteristic of erythroblastosis fetalis. The authors believe that erythroblastosis fetalis may result from isoimmunization with the A and possibly the B antigen by a mechanism similar to that already established for the Rh factor.

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[1] Bailey, *Percival:* Chronic Leptomeningeal Thickening Following Treatment of Meningitis with Sulfa Drugs, Ann. Surg. **122:** 917 (Dec.) 1945.

[1] Davison, Charles, and Demuth, Edwin L.: Disturbances in Sleep Mechanism: A Clinicopathologic Study, Arch. Neurol. & Psychiat. **54:** 241 (Oct.) 1945.

[1] To All the People of North Carolina: A Proposed Statewide Program of Hospital and Medical Care, by the Governor's Commission, 1945.

[1] Polayes, S. H., and Ohlbaum, Clarence: Erythroblastosis Fetalis Unrelated to the Rh Factor, Am. J. Clin. Path. **15:** 467 (Oct.) 1945.

MEDICINE AND THE WAR

PROCUREMENT AND ASSIGNMENT SERVICE FOR PHYSICIANS, DENTISTS AND VETERINARIANS

REFUSAL TO DEFER PREMEDICAL STUDENTS CONFIRMED

In a letter to Dr. Frank H. Lahey, chairman of the Procurement and Assignment Service, the Office of War Mobilization and Reconversion again refuses to take any action to defer premedical students. The letter follows:

OFFICE OF WAR MOBILIZATION
AND RECONVERSION
Washington, D. C.

Jan. 29, 1946.

Office of the Director

Dear Dr. Lahey:

This will acknowledge your letter of January 15 and the attached statement supporting Dr. Barton's oral presentation of the case for deferring premedical and predental students. Copies of your statement were supplied to all members of the Inter-Agency Committee on Manpower Shortages. After full consideration of the facts which you presented and of the current and prospective manpower situation, we have decided that we cannot ask that special deferment consideration be extended to this group at this time.

This decision is based upon the following considerations:

1. The Army is now in urgent need of replacements for men who have served for long periods. The bulk of all replacements must come from the 18 year old group. In the face of this need, we do not feel that any group of men becoming 18 years of age can be deferred at this particular time.

2. We anticipate that the number of veterans entering various classes of premedical and predental school during the coming year and the following years will be far in excess of the numbers that would be expected if enrolments in the fall term of 1945 were extended as a basis for estimates. Your estimates of premedical and predental students who will be ready to enter medical or dental school during and after 1948 therefore appear low.

3. While there may be fewer doctors and dentists than the nation actually needs during the coming years, this is also true of a number of other professional fields equally essential to the national welfare. We have, for example, recently declined to urge special deferment consideration for students in scientific and engineering fields who have completed less than three years of work. Our policy is to urge special deferment consideration only for advanced students. Premedical and predental students do not fall within this category.

4. In view of the long average periods of active work in professional fields, and the possibility of expansion in medical education, we do not feel that failure to maintain premedical and predental training at capacity for a short period will significantly reduce the number of doctors and dentists available in the coming years.

We shall continue to balance the manpower needs of the armed forces against requirements for the civilian economy. If extension of deferments appears possible in the future, the status of premedical and predental students will be reviewed again.

Sincerely yours,
J. DONALD KINGSLEY
Director for Manpower
and
Chairman, Inter-Agency
Committee on Manpower Shortages.

ARMY

NOMINATE ASSISTANTS TO THE SURGEON GENERAL

The President recently recommended to the Senate the nominations of Brig. Gens. George S. Beach Jr., Raymond W. Bliss and Edward A. Noyes to be assistants to the Surgeon General with the rank of brigadier general for a term of four years.

General Beach has been commanding general of Brooke General Hospital, Fort Sam Houston, Texas, since July 1941. General Bliss, recently appointed Deputy Surgeon General in addition to his duties as Assistant Surgeon General and Chief of Operations Service, has been with the Army since 1912. General Noyes, surgeon of the Fifth Service Command, Fort Hayes, Ohio, since 1944, was formerly commanding general of Cushing General Hospital at Framingham, Mass. He accepted a Regular Army commission in 1916.

APPOINTED COMMANDING OFFICER OF ENLISTED PERSONNEL

Major Edward G. Streidl, formerly executive officer of the Medical Field Service School, Carlisle Barracks, Pa., was recently appointed commanding officer of the enlisted personnel at the Army Medical Center, Washington, D. C. Major Streidl entered the army in 1930.

NUMBER OF MEDICAL OFFICERS RELEASED

The Office of the Surgeon General recently stated that, up to January 26, 23,779 medical officers and 32,395 nurses had been released from service.

ARMY AWARDS AND COMMENDATIONS

Brigadier General Stanhope Bayne-Jones

Brig. Gen. Stanhope Bayne-Jones, Deputy Chief of the Preventive Medicine Service, Office of the Surgeon General, was recently awarded the Distinguished Service Medal for his outstanding "contribution to the maintenance of health within the Army. As administrator of the Epidemiological Board, he directed the extension, administration and military application of the world-wide research and control program conducted by this board and its ten commissions."

General Bayne-Jones graduated from Johns Hopkins University School of Medicine, Baltimore, in 1914. He entered the Medical Reserve Corps in 1915 and served throughout World War I. From 1917 to 1918 he served with the British Expeditionary Forces in France and Italy and later with the AEF in France and Germany, and has been decorated with the British Military Cross, the French Croix de Guerre and the Silver Star with two Oak Leaf Clusters.

Prior to being ordered to active duty in 1942, General Bayne-Jones was professor of bacteriology at Yale University and had held the position of dean of the School of Medicine at that university.

Colonel Hirsh Julian Frachtman

Col. Hirsh Julian Frachtman, formerly of Houston, Texas, was recently awarded the Bronze Star for meritorious service as Chief of Medical Service of the 22d Station Hospital in the Central Pacific Base Command. The citation accompanying the award read: "For meritorious service in connection with military operations against the enemy from Feb. 10, 1944 to July 1, 1945. As chief of Medical Service, 22d Station Hospital, with an acute shortage of personnel and with heavy patient loads, Colonel Frachtman organized and developed the medical service to a peak of operating efficiency. Through his tireless devotion to duty, diligence, ingenuity and superior planning, he contributed materially to the successful operation of the 22d Station Hospital. The outstanding performance of duty displayed by Colonel Frachtman reflects great credit on himself and the military service." Dr. Frachtman graduated from the University of Texas Medical Branch, Galveston, in 1937 and entered the service Nov. 6, 1940.

Lieutenant Colonel Albert B. Sabin

Lieut. Col. Albert B. Sabin of Cincinnati was recently awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding service in connection with the investigation and control of sandfly fever, dengue fever and Japanese B encephalitis." Dr. Sabin graduated from the New York University College of Medicine, New York, in 1931 and entered the service April 21, 1943.

Lieutenant Colonel Kerwin Armand Fischer

The Legion of Merit was recently presented to Dr. K. Armand Fischer, Louisville, Ky., for his work as chief of the orthopedic section of Billings General Hospital at Indianapolis. As a lieutenant colonel, Dr. Fischer "performed a tremendous number of difficult major orthopedic operations" and trained young officers in orthopedic surgery, saving "many days of hospitalization" for patients at Billings. Dr. Fischer graduated from the University of Louisville School of Medicine in 1926 and entered the service July 8, 1942.

Colonel John H. Talbott

Col. John H. Talbott, commanding officer and director of research of the Quartermaster Climatic Research Laboratory, Lawrence, Mass., was recently awarded the Legion of Merit for his "professional skill, inspirational leadership and comprehensive understanding of the problems of thermoconductivity which enabled him to contribute to the welfare and morale of every combat soldier." Dr. Talbott graduated from Harvard Medical School, Boston, in 1929 and entered the service May 17, 1942.

Colonel Franklin G. Ebaugh

Col. Franklin G. Ebaugh of Denver was recently awarded the Legion of Merit for "organizing the psychiatric services in various general and regional hospitals" in the Eighth Service Command, where he was Neuropsychiatric Consultant. "Colonel Ebaugh also developed an outstanding medical educational program which coordinated the neuropsychiatric field with the other phases of the medical services." Dr. Ebaugh graduated from Johns Hopkins University School of Medicine, Baltimore, in 1919 and entered the service Sept. 15, 1942.

MISCELLANEOUS

UNRRA NEWS

Outfit Twenty-Eight Hospitals in Europe

The United Nations Relief and Rehabilitation Administration is outfitting twenty-eight hospitals, totaling more than 26,000 beds, in three European countries. The hospital outfits have been purchased from army surpluses in the United Kingdom and on the European continent and are being trucked or shipped by sea to Czechoslovakia, Poland and Yugoslavia. The outfits include surgical instruments, beds, blankets, account books and case record charts.

In addition to their work in obtaining the larger units, the UNRRA medical supply men are continuing to comb military surplus stock to obtain equipment for approximately forty-five convalescence centers which will be able to handle less serious cases of illness and those which are enabled after treatment to be moved out of the hospitals to make way for other serious cases.

Public Health Activities in Poland

After a tour of inspection of UNRRA'S public health activities in Poland Dr. W. A. Sawyer, director of health, UNRRA headquarters, reported that he visited Warsaw, Lublin, Cracow, Breslau, Posen and Lodz. Most of his time was spent in consultation with Poland's public health officials and the UNRRA staff and in visiting hospitals, health centers and medical schools. Lectures on the discoveries and new methods in public health and medicine were given in all these cities as the doctors had been isolated for six years from the advances in medicine in the outside world.

In his report Dr. Sawyer stated that the picture presented by Poland today is that of a country recovering from a degree of physical destruction and personal suffering hard to imagine and impossible to describe. The people lack almost everything —food, shelter, clothing—everything except courage and the will to pull themselves up again by their bootstraps. The spirit of Poland is as wonderful as the conditions are appalling.

The most serious health problem is that of preventing the spread of typhoid. Peacetime preventive measures such as chlorinating water supplies have been seriously affected by the destruction of war. The problem of control is aggravated by the tremendous movements of population both within the country and from without. Diphtheria too is giving the health officials great concern. Tuberculosis is widespread as an inevitable result of food shortages, lack of adequate shelter and similar hardships resulting from the war.

Dr. Sawyer further stated that he was greatly impressed by the earnestness and competence of Poland's health officials both in the central Ministry of Health and among health officials in the field. Our relations with them are most satisfactory, and they are doing everything in their power to put the supplies provided by UNRRA to good use among those in greatest need. Although the winter months ahead present critical disease problems, the introduction of supplies, of transportation and of professional health consultants is probably early enough to enable Poland's effective Ministry of Health to cope with the difficulties. UNRRA'S Health Division will do its utmost to make a successful campaign possible.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

INDIANA

Indianapolis City Hospital, Indianapolis. Capacity, 739; admissions, 10,231. Dr. Charles W. Myers, Superintendent (resident—psychiatry).

KANSAS

University of Kansas Hospital, Kansas City. Capacity, 400; admissions, 8,247. Dr. T. G. Orr (resident—anesthesia).

MASSACHUSETTS

Lowell General Hospital, Lowell. Capacity, 188; admissions, 3,068. Miss Carrie B. Knowlton, R.N., Superintendent (2 interns, April 1).

MISSOURI

St. Joseph's Hospital, St. Joseph. Capacity, 150; admissions, 3,623. Sister Catherine, R.N., Administrator (interns, residents—mixed service).

OHIO

Lakewood Hospital, Lakewood. Capacity, 157; admissions, 4,677. Dr. R. B. Crawford, Superintendent (interns, residents—mixed service).

PENNSYLVANIA

Women's Homeopathic Hospital, Philadelphia. Capacity, 210; admissions, 3,765. Miss Mary A. Smith, R.N., Superintendent (interns, April 1).

VIRGINIA

Elizabeth Buxton Hospital, Newport News. Capacity, 181; admissions, 6,947. Dr. Russell Buxton, Superintendent (residents—mixed service).

WASHINGTON

Providence Hospital, Seattle. Capacity, 434; admissions, 11,810. Sister Bernardine, R.N., Superintendent (4 interns, July 1).

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

Alabama

Askin, Henry E., Lt. Col., 1200 S. Central Ave., Alexander City.
Blackburn, Cecil H., 1st Lt., 300 42nd St., Fairfield.
Davidson, M. T., Major, 2937 Southwood Road, Birmingham.
Landy, Aaron E., Major, Vet. Hosp., Montgomery.
Lewis, Lawrence C., Jr., Major, Box 599, Tuskegee.
Owen, Hubert R., Capt., 7759 First Avenue, S., Birmingham.
Parker, Delmer F., Maj., 732 Linwood Road, Birmingham.
Turbeville, Fred M., 1st Lt., 728 9th Court West, Birmingham.

Arizona

Cameron, Lester, Major, Veterans Admin., Tucson.
Jeffery, Vogel J., Capt., Box 966, Buckeye.
Kendig, Tom A., Capt., BX 735, Safford.
Lewis, William G., Capt., Winslow Indian Sanit., Winslow.
Lillibridge, Harold D., Lt. Col., Vet. Adm. Tucson.
Mervynne, Robert D., Capt., St. Joseph's Hosp., Phoenix.
Powell, Charles S., Capt., 607 8th Avenue, Yuma.
Robinson, Joseph A., Major, Veterans Admin., Whipple.
Sult, Charles W. Jr., Major, 710 Professional Bldg., Phoenix.
Westervelt, M. W., 1st Lt., P.O. Box 905, Camp Alegre, Tempe.

Arkansas

Briggs, Barnett P., Major, 701 Main St., Little Rock.
Easterling, Walter D., Major, Lake Village.
Fried, David D., Major, Bigford.
Futrell, Junius B., Major, Rector.
Hardeman, Daniel R. Jr., Capt., 515 Boyle Bldg., Little Rock.
Harrell, W. B., Major, U. of Ark. School of Med., Little Rock.
Holder, James B. Jr., Major, Monticello.
Johnson, Julius D., Major, PO Box 566, Ft. Smith.
Jones, Erner, Major, 1505 Hangar St., Little Rock.
Jones, Robert D., Capt., Harrell.
McCoy, Orville B., Capt., Box 446, Harrison.
Monfort, John J., Capt., 590 Vine St., Batesville.
Monroe, Sanford C., Major, 112 N. Washington St., Magnolia.
Peeler, Malcolm O., Capt., Pangburn.
Rasco, Charles W., Jr., Capt., DeWitt.
Riley, Joseph P., Jr., Major, Eudora.
Riley, Wilbur K., Major, Vet. Admin., North Little Rock.
Ruff, John L., Capt., Searcy.
Slaughter, Wilbur L., Major, 309 Montgomery St., Clarksville.
Sneed, John Wilson, Jr., Capt., 805 W. Arch St., Searcy.
Stocker, William J., Capt., 408 N. 14th St., Ft. Smith.

California

Angelia, Carl L., Capt., 401 Tahoe Ave., Roseville.
Ankele, Cordes W., Major, 2719 10th Ave., Sacramento.
Barnes, Norman J., Major, 626 N. Sycamor Ave., Hollywood.
Berry, Bard S., Capt., 163 Iris St., Redwood City.
Bowles, Frank H. Jr., Capt., 2530 Fillmore St., San Francisco.
Bross, Samuel I., Capt., Apt. B, 5035 Geary Blvd., San Francisco.
Burns, Melton B., Capt., 1885 E. Mountain St., Pasadena.
Campisi, Dominic A., Major, 84 S. 6th St., San Jose.
Clausen, Edwin G., Major, Ferndale.
Conrad, Simon J., Capt., Camarillo State Hosp., Camarillo.
Cornell, Chester E., Capt., 4339 7th Ave., Los Angeles.
Daniels, Elijah R., Capt., 621 Haven Park Ave., El Monte.
Eneboe, John B., Capt., 221 N. Maple Ave., Montebello.
Englehorn, Theodore D., Capt., 339 Quilla St., Salinas.
Ervin, Clinton V., Jr., Major, 1507 7th Ave., San Francisco.
Falk, Harry, Major, 1734 36th Ave., San Francisco.
Gardner, Robert T. Jr., Capt., Vauclain Home, San Diego.
Gentry, Harold G., Capt., 905 W. Highland Ave., Redlands.
Greenhood, Herbert, Major, 6618 Dana St., Oakland.
Groat, Milton J., Capt., 233 S. Park Ave., Montebello.
Harding, William F., Major, 2951 26th St., Sacramento.
Hollombe, Benjamin S., Capt., 826 N. Soto St., Los Angeles.
Hope, Robert B., Major, 3380 Ley Dr., Los Angeles.
James, John B., Capt., 1142 E. Valley Blvd., El Monte
Kearney, Sanborn G., Major, 1507 Chapala St., Bakersfield.
Kohlenberger, Charles F. W., Capt., 108 E. Wilshire, Fullerton.
Lerch, Theodore T., Capt., 463 Perry St., Oakland.
Lloyd, Oliver D., Major, 332 S. Plymouth Blvd., Los Angeles.
McClurkin, Arthur A., Major, 3111 N. Broadway, Los Angeles.
McCune, Scott S., Major, 635 S. Westlake, Los Angeles.
Merrill, John A., Major, 215 Franklyn St., Monterey.
Miller, Clark R., Capt., 950 S. Fremont, San Mateo.
Moss, George L., Major, Orange County Hospital, Santa Ana.
Munger, John R., Capt., 1303 San Pablo St., Los Angeles.
Olson, William A., Capt., 1200 N. State St., Los Angeles.
Pettit, R. D., Capt., % R. E. Pettit, Chamb. of Com., San Jose.

California—Continued

Rew, Kenneth G., Major, 450 Sutter St., San Francisco.
Rochex, Francis J., Major, 200 Castanada Ave., San Francisco.
Shulman, Alexander G., Capt., 536 Glenwood Road, Glendale.
Simonds, Robert, Major, 1921 S. Bedford St., Los Angeles.
Stevens, Weir C., Capt., 400 Hilgard Ave., West Los Angeles.
Stolfa, Laddie L., Capt., General Hosp., Los Angeles.
Tedstrom, Milo K., Lt. Col., 2215 N. Flower, Santa Ana.
Thurber, Packard, Jr., Capt., 417 S. Hill St., Los Angeles.
Tufts, Elwood F., Major, 1515 10th St., Sacramento.
Vogel, Philip J., Major, Glendale.
Watson, Robert W., Capt., 4634 Maubert Ave., Hollywood.
Yant, James H., Major, Route 5, Box 8490, Sacramento.

Colorado

Abrums, William W., Capt., 317 S. Maple St., Trinidad.
Anderson, Roland R., Capt., 5000 W. 33d Ave., Denver.
Boyd, Walter M., Capt., Louisville.
Buchtel, Henry A., Major, 1224 Republic Bldg., Denver.
Carroll, Charles A., Capt., 1006 Akin Ave., Ft. Collins.
Cohen, Edmond F., Major, 925 Republic Bldg., Denver.
Dague, John C., Capt., 1401 High, Apt. 6, Denver.
Hughes, Harry C., Major, 555 Madison St., Denver.
Jacobs, John T., Major, 1631 11th Ave., Greeley.
Kotin, Paul, Capt., Shoenberg Farm, Arvada.
Maxwell, Irwin E., Major, Durango.
Neel, William U., Capt., 2105 West St., Pueblo.
Nethery, Raymond A., Major, Corwin Hosp., Pueblo.
Oxman, Bertram S., Capt., 2761 S. Logan, Denver.
Porter, Bruce M., Capt., 2502 Depew St., Denver.
Porter, Robert T., Major, 1229 17th St., Greeley.
Swartz, Carl W., Jr., Capt., 609 W. 14th St., Pueblo.
Taylor, Gwendolyn E., Capt., 1012 Main St., Canon City.

Connecticut

Abbey, Edward A., Col., 255 Bradley St., New Haven.
Bumstead, John H., Lt. Col., 82 Blake Road, Hamden.
Burke, Francis H., Major, 45 Park St., Rockville.
Caserta, Silvio J., Major, 85 Beardsley Park Terr., Bridgeport.
Cohn, Samuel H., Major, 715 Asylum Ave., Hartford.
Desmond, Charles T., Capt., 50 Willard St., Hartford.
Fabricant, Milton W., Capt., 28 Pleasant St., New London.
Fagan, Francis X., Major, 449 Farmington Ave., Hartford.
Garofalo, Mario L., Capt., 855 Orange St., New Haven.
Haliday, Earle G., Capt., 168 Water St., Stonington.
Irving, James G., Capt., 151 Farmington Ave., Hartford.
Koufman, William B., Lt. Col., 825 Elm St., New Haven.
Levine, Howard, Capt., 133 Smalley St., New Britain.
Marshak, Irving J., Capt., 587 Central Ave., New Haven.
Millen, Samuel R., Capt., State Vet. Hosp., Rocky Hill.
Ottenheimer, Edward J., Major, Windham.
Pagliaro, Joseph J., Lt. Col., 239 Housatonic Ave., Derby.
Pelz, Kurt S., Capt., 26 S. Main St., Wallingford.
Popkin, Michael S., Capt., 3223 Main St., Bridgeport.
Ruby, Robert J., Major, 58 Columbia Blvd., Waterbury.
Sneidman, George L., Col., 18 Asylum St., Hartford.
Weisenfeld, Nathan, Capt., 608 Blvd., Hills Ave., Hartford.

Delaware

Bancroft, Charles M., Capt., Med. Arts Bldg., Wilmington.
Beatty, Gerald A., Major, 2004 Park Dr., Wilmington.
Berlin, Irvin I., Capt., 700 N. Jackson St., Wilmington.
Olivere, Peter J., Capt., 2710 Baynard Blvd., Wilmington.
Russo, Joseph R., Capt., 2406 Delaware Ave., Wilmington.
Sturman, William A., Capt., 1113 S. Broom St., Wilmington.

Florida

Alexander, Julius, Major, 2323 S. Miami Ave., Miami.
Anderson, Clyde O., Capt., 1212 15th Ave., N., St. Petersburg.
Camp, Milton N., Major, 720 Sweet Bldg., Ft. Lauderdale.
Carroll, Bruce D., Lt. Col., 894 N.E. 81st St., Miami.
Dawson, George M., Lt. Col., 100 Wildemere Rd., West Palm Beach.
Frehling, Stanley, Capt., 602 DuPont Bldg., Miami.
Hopkins, Clack D., Lt. Col., 1812 Jetton Ave., Tampa.
Jennings, Lloyd H., Capt., 400 W. Call St., Starke.
Kirkpatrick, Jere W., Capt., P.O. Box 211, Hernando.
Ombres, Severn R., Capt., 236 Australian Ave., Palm Beach.
Purcell, Thomas R., Major, 101 Bay St., Tarpon Springs.
Quillian, Millard P., Capt., 2801 River View Blvd., Bradenton.
Roberts, Thomas E., Capt., 902 Salzeto St., Coral Gables.
Sternberg, Jacob C., Major, 2280 S.W. 16th Court, Miami.

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PHYSICIANS SEPARATED FROM SERVICE

Georgia

Atkinson, Samuel C., Capt., Waverly.
Black, Millard W., Capt., City Hospital, Columbus.
Edwards, Franklin D., Major, 1344 2nd Ave., Columbus.
Garrett, Luke Glenn Jr., Capt., Austell.
Hendry, William A., Major, Blackshear.
Jones, Robert T. III, Capt., Canton.
Long, Harold W., Major, Eastman.
Michael, Max, Jr., Capt., 1260 Milledge Ave., Athens.
Morton, John B., Major, Gray.
Rogers, James T., Lt. Col., 219 N. Bradford St., Gainesville.
Rubin, Harry, Col., 505 E. 50th St., Savannah.
Stapleton, John L., Lt. Col., 2009 18th Avenue, Columbus.
Wood, David L., Capt., 202 Kind St., Dalton.
Yeomans, James W., Capt., 208 Main St., Barnesville.

Illinois

Albaum, Joseph, Capt., 861 S. State St., Lincoln.
Albers, Elmer A., Capt., 34 Logan St., Lemont.
Andrew, Lloyd B., Major, Vet. Admin. Facility, Hines.
Appelbaum, Israel, Capt., 5036 N. Springfield Ave., Chicago.
Bancroft, Burton R., Major, 319 N. Grove, Oak Park.
Barnett, Harry E., Capt., 211 S. Central Ave., Chicago.
Beaton, Lindsay E., Capt., 914 B Crain St., Evanston.
Beinar, Peter J., Capt., 3301 Emerald Ave., Chicago.
Bernstein, Morley L., Capt., Michael Reese Hospital, Chicago.
Blondis, Ernest R., Capt., 707 McCarthy Road, Lemont.
Bobrow, Leon B., 1st Lt., 4531 N. Kimball, Chicago.
Boros, Eugene J., Capt., Bethany.
Boylson, Myron I., Capt., 310 E. Daggy St., Tuscola.
Brehaus, Herbert C., Capt., 11171 S. Lothair Ave., Chicago.
Callahan, James J., Lt. Col., 511 Linden Ave., Oak Park.
Campbell, Edward D., Major, Xenia.
Casey, Emmet F., Major, 7243 Rascher St., Chicago.
Cohn, Isadore H., Capt., 39 S. St. Louis St., Chicago.
Comess, Oscar H., Major, 3227 W. Thomas St., Chicago.
Coopersmith, Max M., Capt., 6802 Merrill Ave., Chicago.
Crane, Cyril V., Lt Col., 6810 S. Loomis St., Chicago.
Daly, Philip A., Lt Col., 6853 Jeffery Ave., Chicago.
Davis, Landis Y., Major, Baylis.
Dexheimer, Herbert P., Capt., 703 S. Lincoln, O'Fallon.
Donlon, Francis P., Capt., 3065 Palmer Square, Chicago.
Droege, Edward H., Lt. Col., 1350 27th St., Granite City.
Dvonch, William J., Major, 2859 W. Cermak Rd., Chicago.
Eilert, William G., Major, 410 Downer Place, Aurora.
Fenwick, Herbert F., Major, 167th S. & 107th W., Orland Park.
Finkle, Albert M., Capt., 6439 N. Maplewood, Chicago.
Fox, William W., Major, 861 S. State St., Lincoln.
Franco, Joseph R., Capt., 5914 W. Roosevelt Road, Chicago.
Gaines, Walter, Capt., 4519 N. Harding Ave., Chicago.
Ginnan, Edward J., Capt., 850 S. 17th, Maywood.
Goodman, Daniel H., Capt., 1644 N. Seminary, Galesburg.
Greenberg, Harold A., Major, 2035 E. 73d St., Chicago.
Groth, Norton R., Major, 1001 Columbian Ave., Oak Park.
Hall, James W. Jr., Lt. Col., 8021 Kingston Ave., Chicago.
Heyer, Howard E., Major, 400 Washington Blvd., Chicago.
Hilker, Albert W., Capt., 233 N. Harvey Ave., Oak Park.
Jones, Robert M., Lt. Col. 214 Fifth St., Wilmette.
Kalisz, Walter F., Major, 1110 Milwaukee Ave., Chicago.
Kallen, Irwin A., Capt., 3856 W. Grenshaw St., Chicago.
Kreft, Alfred J., Major, 904 Lee St., Des Plaines.
Kwinn, Frank C., Capt., 1651 W. 47th St., Chicago.
Landmann, Paul E., Capt., 207 N. Reed St., Joliet.
Lando, Leon, Capt., 184 W. Beardstown St., Virginia.
Lewy, Robert B., Major, 2051 E. 72nd Place, Chicago.
Lindberg, Howard A., Lt. Col., 400 Deming Pl., Chicago.
Loverde, Albert A., Capt., 4145 Eddy St., Chicago.
McClosky, James D., Major, 207 E. 12th St., Alton.
MacKoff, Herman, Major, 6600 S. Sacramento Ave., Chicago.
Marcus, Samuel M., 1st Lt., 1245 S. St. Louis Ave., Chicago.
Marvel, Wiley R., Capt., Weldon.
Masor, Nathan A., Capt., 808 Junior Terrace, Chicago.
Mercer, Ray, Lt. Col., 811-13 W. C. U. Bldg., Quincy.
Miller, Edward B., Capt., 5426 Maryland Ave., Chicago.
Mitrick, Joseph M., Capt., 8718 S. Marshfield Ave., Chicago.
Moffatt, John S., Major, Byron.
Morris, Richard P., Capt., 5710 Maryland Ave., Chicago.
Moskal, Frank J., Capt., 4214 W. 25th Place, Chicago.
Murray, Don E., Capt., 1400 Lake Shore Dr., Chicago.
Nelson, Glenn S., Capt., 6135 Glenwood Ave., Chicago.
Norris, Harold V., Major, 409 Farmers Bk. Bldg., Jacksonville.
Novack, Benjamin F., Capt., 1151 W. Adams St., Chicago.
O'Connell, W. M., Capt., Municipal Tuberculosis Sanit. Peoria.
Parrott, Elmer L., Capt., 102 N. Oak, Hinsdale.
Peterson, Arthur K., Lt. Col., 8215 Carpenter St., Chicago.

Illinois—Continued

Phillips, William P., Capt., 7100 N. Washtenaw, Chicago.
Plaut, Julian L., Capt., 5100 Kimbark Ave., Chicago.
Prusait, Walter, 1st Lt., 1006 Dobson St., Evanston.
Pummer, Lewis R., Capt., 2041 Morse Ave., Chicago.
Raber, Paul A., 1st Lt., 1109 S. Linden, Normal.
Reynolds, Robert L., Lt. Col., 1015 S. 4th Avenue, Maywood.
Roane, Robert D., Capt., Carlyle.
Rosenthal, Morris M., Capt., 6500 W. Irving Park Rd., Chicago.
Rubenstein, Hyman I., Capt., 5718 N. Christiana Ave., Chicago.
Sazma, Russell J., Capt., 5353 S. California Ave., Chicago.
Schertz, Truman B., Capt., RFD 1, Roanoke.
Schultz, Abraham, Major, 2140 N. Kedzie Ave., Chicago.
Schwartz, Isadore, 1st Lt., Saunemin.
Slattery, James T., Capt., 1140 Berwyn Ave., Chicago.
Snavely, John R., Capt., 401 Second Ave., Sterling.
Stulik, Lincoln, Capt., 943 Forest Ave., River Forest.
Sullivan, Ralph D., Major, 1420 W. 72d Pl., Chicago.
Tobias, Milton R., Capt., 4856 N. Ridgeway, Chicago.
Tobin, Walter W., Capt., 188 W. Randolph St., Chicago.
Wajay, Louis A., Capt., 3040 N. Cicero Ave., Chicago.
West, Stephen L., Capt., 5427 University Ave., Chicago.
White, Noland W., Major, 2a N. Douglas Ave., Belleville.
Williams, Francis R., Major, 4722 Greenwood Ave., Chicago.
Zurawski, Walter F., Capt., 1106 N. Monticello Ave., Chicago.

Indiana

Albright, Victor F., 1st Lt., 2258 N. Meridian, Indianapolis.
Beetem, Luther F., Capt., 411 N. Broadway, Madison.
Covell, Harry M., Lt. Col., 903 N. Main St., Auburn.
Daley, Edward H. Jr., Capt., 1710 Indiana Ave., LaPorte.
Dintaman, Paul G., Capt., Indianapolis City Hosp, Indianapolis.
Earhart, Henry T., Capt., 402 N. Meridian, Indianapolis.
Fender, Asa H., Capt., Worthington.
Green, Charles E., Capt., 138 N. Vine St., Plainfield.
Hatfield, Nicholas W., Major, 3850 Guilford Ave., Indianapolis.
Iterman, George E., Lt. Col., 1319 Church St., New Castle.
Keseric, Nicholas E., Major, 551 Taft St., Gary.
Lee, Glen W., Lt. Col., Methodist Episcopal Hosp., Indianapolis.
Lester, Louis J., Capt., 960 Locke St., Indianapolis.
McClure, David N., Capt., 2308 I St., Bedford.
Marshall, A. L., Major, 3444 N. Pennsylvania St., Indianapolis.
Mulcahy, Bernard J., Capt., 214 S. Manning Ave., Muncie.
Nelson, Richard B., Capt., 6741 Hohman Ave., Hammond.
Oswalt, James T., Capt., Stewart Apts., Dunkirk.
Poland, Maynard F., Capt., 612 Berkley Rd., Indianapolis.
Rhea, Gilbert D., Capt., 126 E. Washington St., Greencastle.
Ross, Alexander T., Major, 4710 Hinesley Ave., Indianapolis
Sharp, William L., Major, Country Club Estates, Anderson.
Slaughter, Earl C., Capt., 418 Calumet Bldg., Hammond.
Spalding, Wendell L., Lt. Col., 617 Webster St., Mishawaka.
Stamper, Lucian A., Capt., 420 S. 22d St., Richmond.
Swets, Edward J., 1st Lt., 925 175th Pl., Hammond.
Uhrich, John H., Major, 1120 Clay St., Ft. Wayne.
Watson, Herman L., Major, 2021 E. Franklin St., Evansville.

Iowa

Anneberg, Adrian R., Capt., 1332 N. Carroll St., Carroll.
Balzer, Walter J., Capt., 222 Essex Lane, Davenport.
Burke, Jerome C., Capt., Woodlands, Clinton.
Cornell, Dale D., Lt. Col., Greenfield.
Fenton, Charles D., Capt., Bloomfield St., Bloomfield.
Fourt, Arthur S., Lt. Col., 12 W. Park Road, Iowa City.
Gamet, Elmo E., Major, Lamoni.
Johnstone, Alexander A., Col. 518 N. 4th Ave., Keokuk.
Koehen, Gerald F., Major, Univ. Hosp., Iowa City.
Korfmacher, Edwin S., Capt., 1327 Main St., Grinnell.
Lorfeld, Gerhard W., Capt., 1105 W. Locust St., Davenport.
Martin, Lowell E., Capt., Main St., Hamburg.
Moerke, Robert F., Major, Medical Arts Bldg., Burlington.
Paulus, James W., Capt., 595 Alta Vista, Dubuque.
Schueller, Charles J., Capt., R.R. 1, Asbury Road, Dubuque.
Sedlacek, Leo B., Col., 412 19th St., SE, Cedar Rapids.
Stearns, Alexander B., Major, 805 Equitable Bldg., Des Moines.
Sunderbruch, John H., Capt., 2246 W. Third St., Davenport.
Wainwright, Maxwell T., Capt., Mapleton.

Kansas

Cheney, Ralph E., Major, 200 W. Park Lane, Salina.
Davis, Paul E., Capt., Box 589, Larned.
Knappenberger, Roy C., Jr., Major, Penalosa.
Lafene, Benjamin W., Capt., 805 Elm St., Marysville.
Marshall, Malcolm Y., Major, Wadsworth.
Neighbor, Ernest G., Capt., 2245 Fieldston Rd., Kansas City.
Ortman, Gareth S., Lt. Col., Otego.

PHYSICIANS SEPARATED FROM SERVICE

Louisiana

Beranger, E. J., Major, 2005 Elysian Fields Ave., New Orleans.
Byron, Robin A., Major, Charity Hospital, New Orleans.
Grant, George B., Lt. Col., 1328 Webster St., New Orleans.
Healy, Thomas J., Capt., 1108 Jahncka Ave., Covington.
Johnson, Trois E., Capt., Pollock.
Leidenheimer, Henry Jr., Major, 9135 Heaton St., New Orleans.
McCord, William M., Major, 3949 La. Ave. Pky., New Orleans.
MacNamara, Homer P., Col., 1722 Albert St., Alexandria .
Nadler, Carl S., Jr., Major, Plaquemine.
Ogden, Frederick W., Capt., 1925 Gen. Pershing St., New Orleans.
Phillips, Benjamin J., Major, Huey Long Hospital, Pineville.
Robinson, Robert H., Capt., Box 303, Franklin.
Scott, Wood H., Capt., Bonita.
Speer, Seals S., 1st Lt., PO Box 217, Ringgold.
Thomas, Orville C., Capt., 102 Hundon St., Shreveport.
Tritico, Joseph J., Capt., Charity Hospital, New Orleans.
Williams, John W. Jr., Major, 2455 Alma St., Alexandria.
Winters, Allen C., Major, Vet. Facility, Alexandria.

Massachusetts

Abdu, Louis, Capt., 64 Provost, Brockton.
Allegree, Walter J., Capt., 1783 Mass. Ave., Cambridge.
Barron, Louis E., Major, 101 N. Common St., Lynn.
Bauer, Walter, Col., Mass. General Hospital, Boston.
Beigelman, Herman, Capt., 36 Quincy Ave., E. Braintree.
Brewster, Henry H., Major, 503 Washington St., Brookline.
Brown, Albert A., Major, 14 Shepard Pl., Lynn.
Casey, David T., Major, 131 Putnam Ave., Cambridge.
Chase, John S., Capt., 21 Newton St., Brockton.
Colokathis, Paul P., Capt., City Hospital, Worcester.
Condon, Robert V., Capt., 44 Westbourne St., Boston.
Connolly, Richard F., Capt., 25 Conant, Danvers.
Davis, Albert I., Capt., 191 Sea St., Quincy.
Downing, William M., Capt., % Claude B. Cross, Tremont Bldg., Boston.
Doyle, Bernard J., Capt., 19 Clarke Ave., Northampton.
Eppinger, Eugene C., Col., 71 Griggs Road, Brookline.
Fienberg, Robert, Lt. Col., Westfield State Sanat., Westfield.
Finnin, John J., Capt., 47 Forest St., Medford.
Fitzgerald, Edward F., Capt., 170 Bowdoin St., Dorchester.
Flaschner, Ira, Capt., Pocasset.
Glenn, William W. L., Capt., Mass. Gen. Hosp., Boston.
Goldberg, Irving E., Capt., 28 Warren Ave., Chelsea.
Gorney, Arthur J., Capt., 232 Foster St., Brighton.
Greene, William A. Jr., Major, Sutton Ave., Oxford.
Hadden, Frederick C., Capt., 5 Shattuck St., Natick.
Hagopian, Peter B., Major, Danver State Hosp., Hathorne.
Helfrich, William R., Capt., 166 Wash St., Quincy.
Holden, Eugene M., Capt., 86 N. Pleasant St., Amherst.
Hormell, Robert S., Capt., 686 Massachusetts Ave., Boston.
Howard, Ernest B., Major, 30 Wiley Rd., Belmont.
Jolma, Keijo K., Capt., 86 Johnathan St., Gardner.
Kaplan, Louis S., Capt., Beach Rd., Salisbury.
Keith, Theodore K., Major, 47 Grafton St., Newton Centre.
Kingsbury, Curtis B., Lt. Col., 63 Prospect St., Taunton.
Lavoie, Robert J., Capt., 170 Dana Ave., Worcester.
Leavitt, Abraham C., Capt., 350 Broadway, Everett.
Lewis, Frank E., Lt. Col., 30 Centre St., Nantucket.
Lief, Philip A., Capt., 29 Brookledge St., Roxbury, Boston.
Lorimer, Robert V., Capt., 333 Longwood Ave., Boston.
Loth, Eric C., Capt., 28 Montebello Rd., Jamaica Plain.
Martinson, Melvin S., Capt., 468 Main St., Action.
Mead, Sedgwick, Major, Mass Gen. Hosp., Boston.
Meline, David I., 1st Lt., 72 Maywood St., Roxbury.
Morse, Lawrence S., Capt., 73 Thatcher St., Brookline.
Neff, Richard S., Capt., Children's Hospital, Boston.
Nichols, Andrew III, Major, 10 Berry St., Danvers.
Noonan, John P., Capt., 15 Allen St., Brockton.
Ober, Robert E., Capt., 1716 Cambridge St., Cambridge.
O'Brien, Frederick F., Major, 3 Highland Park, Cambridge.
Paget, John F., Major, 16 Napleton St., Brighton.
Pease, Horace B., Maj., 118 Westmoreland Ave., Longmeadow.
Perry, Thomas F., Capt., 234 Commercial St., Provincetown.
Porter, Reno R., Lt. Col., 61 Sumner Road, Brookline.
Potter, William H., Capt., 39 Kirkland St., Cambridge.
Quigley, Thomas J., Capt., 1633 Tremont St., Boston.
Rosenthal, Arthur O., Capt., 85 Main St., N. Adams.
Ross, Frederick P., Capt., Peter Bent Brigham Hosp., Boston.
Russell, Donald H., Major, 33 Sutton St., Peabody.
Rust, Jesse A., Jr., Capt., Boston City Hosp., Boston.
Saperstein, Hyman I., Capt., 606 Main, Malden.
Schillander, Carl A., Lt. Col., 88 Maple St., Springfield.
Shinberg, John D., Capt., 38 Lakeview Ave., Haverhill.

Massachusetts—Continued

Simon, Norman, Capt., 9 Logan St., Lawrence.
Stillman, James S., Jr., Lt. Col., 164 Elgin St., Newton Centre.
Stone, Simon, Capt., 169 Columbia Rd., Dorchester.
Sullivan, Edward M., Capt., 528 Broadway, Chicopee Falls.
Tiede, Joseph W., Lt Col., 18 School St., Dedham.
Velona, Bruno, Capt., 519 Main St., Medford.
Wantman, Bernard I., Capt., 771 Broadway, Somerville.
Yood, Alfred, Capt., 390 Massachusetts Ave., Arlington.
Young, Leo A., Capt., 32 Prichard St., Fitchburg.
Zalvan, Jacob, 1st Lt., 175 Exchange, Millis.

Michigan

Albi, Raphael W., Major, Lake City.
Andries, Raymond M., Capt., Receiving Hospital, Detroit.
Barstow, Donald K., Capt., 215 Saginaw Ave., St. Louis.
Borgman, Wallace, Capt., 832 Ashley Dr., Kalamazoo.
Chynoweth, William R., Major, 207 Post Bldg., Battle Creek.
Clausen, Claire H., Capt., Gladstone.
Feigelman, Meyer J., Major, 2715 Richton St., Detroit.
French, Adam J., Lt. Col., 1332 Geddes St., Ann Arbor.
Frisch, Arthur W., Capt., 1130 Holcomb Ave., Detroit.
Gourley, Eugene V., Major, 19901 Littlefield, Detroit.
Hersee, William E., Capt., 306 S. College, Mt. Pleasant.
Howell, Roderic B., Major, 1611 Wells St., Ann Arbor.
Kay, Harry H., 1st Lt., 18201 Santa Rosa, Detroit.
Leland, Sol, Major, 1526 Taylor St, Detroit.
Longyear, Harold W., 1st Lt., 10943 Longview Ave., Detroit.
Markley, John M., Capt., 81 Dwight St., Pontiac.
Mitchell, Wilfrid B., Capt., 2245 N. LaSalle Gardens, Detroit.
Noer, Rudolf J., Lt. Col., 1512 St. Antoine St., Detroit.
Paine, Emory M., Capt., 433 Sixth St., Traverse City.
Rau, Frederick W., 1st Lt., 1102 Federal Ave., Saginaw.
Rubinfeld, Samuel H., Capt., Ontonagon.
Smith, Lewis L., Capt., 73 W. Chicago, Coldwater.
Sprunk, Carl J., Major, 12629 Wyoming Ave., Detroit.
Tenaglia, Thomas A., Capt., 3586 S. Liddesdale, Detroit.
Trombley, Joseph J., Major, 19000 Puritan Ave., Detroit.
Weston, Horace Lynn, Major, 18923 Strathmoor, Detroit.
Wienczewski, Theophila W., Capt., 132 Oldfield St., Alpena.

Minnesota

Anderson, David P. Jr., Major, 209 W. Mill St., Austin.
Anderson, Gaylord W., Lt. Col., 2261 Folwell St., St. Paul.
Branham, Donald S., Lt. Col., 1502 Wedge St., Albert Lea.
Brigham, Charles F. Jr., Capt., 426 3rd Ave., S., St. Cloud.
Brown, Walter E., Jr., Major, Mayo Foundation, Rochester.
Burns, Herbert A., Major, 3325 S. 1st Ave., Minneapolis.
Garetz, Michael A., Capt., 1106 Knox Ave., N. Minneapolis.
Gray, Robert F., Capt., Marshall.
Hench, Philip S., Col., 517 Fourth St., S.W., Rochester.
Jacobson, Wyaman E., Major, 5249 Columbia Ave., Minneapolis.
Joffe, Harold H., Capt., 1718 E. 7th St., Duluth.
Jones, Herbert W. Jr., Major, 3300 Fremont Ave., S., Minneapolis. (Legal Res.—133 E. Ave., Quincy, Ill.).
Krieser, Albert E., Capt., 1211 N. 4th St., Mankato.
Larson, Evrel A., Major, Minn. Univ. of., Minneapolis.
Lovelady, Sim B., Lt. Col., 1344 2nd St., NW, Rochester.
Mattson, Albert D., Capt., Atwater.
Noonan, Wm. J., Lt. Col., 2211 Kenwood Pkwy., Minneapolis.
Olson, Grant E., Capt., West Concord.
Peterson, Wendell G., Major, 621 2nd St., SW, Rochester.
Pewters, John T., Capt., 1835 Kenwood Parkway, Minneapolis.
Pumala, Ervan E., Major, 1 E. Sixth St., Duluth.
Schmidt, Herbert W., Major, 204 14th St., N.E., Rochester.
Shapiro, Jesse, Major, 952 Goodrich Ave., St. Paul.
Tuohy, Edward B., Major, 422 Fifteenth Ave., S.W., Rochester.
Twyman, Richard A., Capt., 609 7th Ave. S.W., Rochester.
Watson, William J., Major, Holdingford.

Missouri

Banet, Samuel R., Capt., 738 DeMun, St. Louis.
Berman, William, Capt., 7331 Delmar Blvd., St. Louis.
Cutler, Harold M., Capt., Barnes Hospital, St. Louis.
Damron, Edward O., Capt., Elsberry.
Feltz, Lawrence W., Capt., 621 St. Joseph St., Perryville.
Hufnagel, Charles J., Lt. Col., 819 Linwood, Excelsior Springs.
Imperatrice, Joseph F., Capt., State Hospital 1, Fulton.
Jones, Asa C. Jr., Capt., Kansas City Gen. Hosp., Kansas City.
McAdam, Charles R., Major, 513 Country Club Dr., St. Louis.
Quarles, Edgar B., Major, 1028 Claytonia Terr., Richmond Hts.
Ray, Richard H., Lt. Col., Willow Springs.
Rose, Ralph J., Capt., 3602½ Benton Blvd., Kansas City.
Seddon, John W., Capt., 5341 Waterman Ave., St. Louis.
Silsby, Don H., Col., 326 Landers Bldg., Springfield.

PHYSICIANS SEPARATED FROM SERVICE

New Jersey

Abarbanel, Milton G., Capt., 95 Grant Ave., Jersey City.
Albano, Frank J., Capt., 535 N. 7th St., Newark.
Bedrick, John J., Lt. Col., 41 E. 45th St., Bayonne.
Bergsma, Daniel, Lt. Col., 513 W. Broadway, Paterson.
Bloomenthal, Sanford R., Major, St. Francis Hosp., Trenton.
Byck, Louis, Capt., 794 S. 11th St., Newark.
Carrigan, Francis P., Lt. Col., 516 Prospect St., Maplewood.
Cotton, Henry A. Jr., Lt. Col., N. J. State Hosp., Trenton.
Coughlin, Joseph J., Capt., 840 Queen Ann Road, Teaneck.
Cross, Richard J., Capt., PO Box 246, Bernardsville.
Danielson, John J., Capt., 4703 Tonnelle Ave., North Bergen.
Del Negro, Albert E., Lt. Col., 402 Roseville Ave., Newark.
Dengrove, Edward, Capt., 85 Stevens Ave., Jersey City.
Dicker, Howard E., Major, 78 Main St., South River.
Di Norcia, Joseph, Capt., 357 3rd Ave., Newark.
Erber, Leonard B., Capt., 116 S. Raleigh Ave., Atlantic.
Faber, Edward, Capt., 154 Bergen Ave., Jersey City.
Faison, Jere B., Capt., PO Box 51, Manasquan.
Feldman, Matthew, Capt., 85 Renner Ave., Newark.
Flood, William A., Major, Vet. Adm. Facility, Lyons.
Frazee, William H., Jr., Capt., 513 Main St., Toms River.
Greene, Harry, Major, 90 Duncan Ave., Jersey City.
Holtz, Harry M., Capt., 299 Clinton Ave., Newark.
Howell, Thomas W., Major, 292 Springdale Ave., East Orange.
Koerber, George, Major, 136 Prospect St., Passaic.
Kratka, William H., Capt., 123 N. Pearl St., Bridgeton.
Krug, Alfred J., Capt., 217 Jacoby St., Maplewood.
Law, Harrison E., Major, 317 Harrinton Ave., Closter.
Levitas, Irving M., Capt., 24 Lyon Place, Westwood.
Lipshutz, Charles, Major, 820 Ave. C., Bayonne.
McCluskey, Harry B., Capt., Whippany Road, Whippany.
MacDonald, Kenneth G., Capt., 179 Wash. Ave., Clifton.
McGuire, John J., Major, Gould Ave., Newark.
Morrow, Joseph L., Capt., 56 Ridge Rd., Lynhurst.
Mulligan, Luke A., Lt. Col., 230 Central Ave., Leonia.
Murray, Edwin N., Lt. Col., 558 Newton Ave., Camden.
Nyvall, Pierre J., Capt., 4 S. Main St., Barnegat.
Pallante, Samuel, 1st Lt., 530 Highland Ave., Westville.
Peck, Eleanor K., Capt., 48 Edgemont Rd., Montclair.
Peimer, Ralph, Capt., 388 E. 26th St., Paterson.
Pugh, Thomas F., Major, 135 E. Central Avenue, Moorestown.
Reilly, Thomas F., Capt., 127 Union Ave., Clifton.
Rosen, Sol, Capt., 214 N. Second St., Millville.
Rosenberg, Louis, Capt., 26 S. Stanton Pl., Atlantic City.
Schneiderman, Benjamin I., Capt., South River.
Schwartz, Leo, Capt., 328 Harrison St., Passaic.
Sirotta, Ezra B., Capt., 220 W. Broad St., Paulsboro.
Sperling, Walter J. Jr., Capt., 29 Oxford St., Montclair.
Stouter, Francis L., Capt., 29 17th Ave., Paterson.
Sutnick, Theodore B., Capt., 21 Richey Pl., Trenton.
Talmage, William G., Capt., Succasunna.
Thron, Leopold E., Capt., 586 E. 29th St., Paterson.
Viteri, Luis E., Major, 214 High St., Mount Holly.
Wren, James C., Capt., Haworth.

New York

Abramson, Jacob, Capt., 7802 4th Ave., Brooklyn.
Agatston, Howard J., Major, Kings County Hospital, Brooklyn.
Alters, Irwin, Major, 975 Walton Ave., New York.
Altman, David, Capt., Ocean Ave., Massapequa.
Altman, Leon L., Major, Stony Lodge, P.O. Box 190, Ossining.
Aronson, Philip, Major, 124 Tapscott St., Brooklyn.
Attie, Joseph N., 1st Lt., 2165 63rd St., Brooklyn.
Baird, Nolan H., Lt. Col., 745 E. Post Road, Mamaroneck.
Ball, Robert P., Lt. Col., 622 W. 168th St., New York.
Bauer, David W., Capt., 1012 Ocean Ave., Brooklyn.
Beery, Edwin N., Lt. Col., 96 Remsen St., Brooklyn.
Bennett, Scott L., Major, 109 Hawthorne St., Brooklyn.
Berg, Howard W., Major, 216 Lenox Ave., Albany.
Black, Maurice M., Capt., 1730 E. 7th St., Brooklyn.
Blauner, Stuart S., Capt., 94 Greenridge Ave., White Plains.
Bond, Philip, Capt., 81 Ocean Parkway, Brooklyn.
Boright, Melvin T., Capt., 263 Northern Blvd., Albany.
Brannan, Gordon R., Capt., 47 Lake Ave., Middleton.
Brenner, Joel J., Capt., 1416 Carroll St., Brooklyn.
Broad, Monroe M., Major, 87-11 150th St., Jamaica, L. I.
Brodey, Adrian, Major, 82 Carlton Ave., Far Rockaway.
Burson, Leonard C., Major, 228 Beach 123 St., New York.
Buscicchi, Emile J., Capt., Sheridan Ave., Congers.
Byron, Raymond J., Major, Maple Terrace, Philmont.
Carr, Frederick S., Major, 17 Pearl St., Kingston.
Church, Gerald T., Major, 677 Onondaga, Syracuse.
Ciofalo, Frank I., Major, 226 E. 15th St., New York.
Cohen, Nathaniel A., Major, 1280 E. 18th St., Brooklyn.

New York—Continued

Colbert, Robert M., Lt. Col., 152 W. 58th St., New York.
Colmer, Malcolm L., Major, 200 W. 86th St., New York.
Coren, Malvin M., Capt., 2390 Tiebout Ave., Bronx.
Corwith, Arthur E., Major, Hildreth Lane, Bridgehampton.
Coutts, Malcolm B., Major, 591 Palisade Ave., Yonkers.
D'Amato, G. R., Capt., 26 Aberdeen Road, New Hyde Park.
Damond, Joseph L., Lt. Col., 140 W. 58th St., New York.
Derrick, Eugene D., Capt., 25 Crestmont Rd., Binghamton.
DeSando, Carl J., 1st Lt., 1095 Ridge Wood West, Rochester.
DiFiore, Joseph C., Major, 2200 E. Tremont Ave., New York.
Dobrak, Alfred H., Capt., 31 Oberlin St., Buffalo.
Donovan, Eugene T., Capt., 265 Parkside Ave., Buffalo.
Doskof, Samuel W., 1st Lt., 12 South Drive, Great Neck.
Drayer, Carl, Capt., 350 Lefferts Ave., Brooklyn.
Dworin, Morris, Capt., 741 Fairmount Place, Bronx.
Edwards, Aaron R., Capt., 110 Heights Ct., Ithaca.
Eisenstat, Max, Lt. Col., 1749 Grand Concourse, New York.
Eisenstein, Henry, Major, 2102 E. 36th, Brooklyn.
Elkind, Mortimer M., Capt., 634 Empire Blvd., Brooklyn.
Engelhart, Ferdinand K., Capt., 28 Oak Lane, Trenton.
Evans, Alexander L., Capt., 2865 W. 20th St., Brooklyn.
Farbman, Meyer David, Capt., 800 Fordham St, Bronx.
Feingold, Abraham, Lt. Col., 1566 40th St., Brooklyn.
Feinstein, Morris, Capt., 2850 Claflin Ave., Bronx.
Fischer, Isidore, Major, 1515 Macombs Road, Bronx.
Flamberg, Ira W., Capt., 81 S. Clinton Ave., Bay Shore.
Flynn, William V., Capt., 469 Hudson Ave., Albany.
Foley, Edwin J., Capt., 80 Cranberry St., Brooklyn.
Frohman, Albert, Capt., 90-28 212th St., Queens Village.
Gabriele, Domenic J., Capt., 88-30 62nd Drive, Rego Park, L. I.
Gallo, Frank A. R., Major, 6816 16th Ave., Brooklyn.
Gendel, Edward, Capt., 41 W. 82d St., New York.
Gershman, Maurice, Major, 906 1st Court, Brooklyn.
Gilbert, Sidney B., Capt., 349 E. 19th St., Brooklyn.
Gitzelter, Irving I., Capt., 452 Seneca Ave., Brooklyn.
Goetzman, Arthur C., Major, 8907 Hannepin, Niagara Falls.
Goldberg, Moe A., Capt., 1212 Grant Avenue, Bronx.
Gorlin, Philip S., Capt., 130-01 Lefferts Blvd., Ozone Park.
Greenberg, Joseph H., Capt., 234 Lefferts Ave., Brooklyn.
Gueft, Boris, Capt., 276 Riverside Dr., New York.
Gurian, Sydney H., Capt., 1 E. 105th St., New York.
Hass, Nathan H., Capt., 2249 E. 21st St., Brooklyn.
Heldt, John H., Capt., 876 Central Ave., Woodmere.
Hillyer, Robert A., Major, Kings County Hospital, Brooklyn
Hoffman, Edward S., Capt., 557 Hazelwood Terrace, Rochester.
Ingrisano, Louis A., Capt., 142 Somers St., Brooklyn.
Isaacson, Edwin, Capt., 1884 Arthur Ave., Bronx.
Jaroszewicz, Anthony G., Capt., 624 Henry St., Utica.
Johnson, William W., Lt. Col., 79 Court St., Plattsburg.
Jordan, Fred A. Jr., Capt., 5 River St., Cortland.
Kaback, Erwin R., Capt., 7 Montgomery St., Middletown.
Kauer, George L., Jr., Major, 230 E. 71st St., New York.
Keegan, Edward J., Major, 330 Main St., Oneonta.
Klein, Samuel M., Major, 35-61 87th St., Jackson Heights
Klimow, Nicholas I., Major, 103 Adams Ave., Johnson City.
Kwit, Nathaniel T., Major, 1075 Grand Concourse, New York.
Lang, Leonard C., Major, 400 Forest Ave., Buffalo.
Leachman, John W., Lt. Col., Pavilion.
Lebowitz, Jerome H., Capt., 800 E. 175 St., New York.
Levitan, Morton E., Capt., 238 Watjean Court, Far Rockaway.
Lippman, Richard W., Major, 310 E. 55th St., New York.
Lo Re, Alexander S., Capt., 2365 Dean St., Brooklyn.
McCaffren, Lawrence E., Capt., 20 Girton Pl., Rochester.
Maislen, A. A., Capt., 92-11 35th Ave., Jackson Heights, L. I.
Malko, Michael G., Capt., 164 N. 6th St., Brooklyn.
Mechaneck, Isidore, Capt., 41-47 56th St., Woodside.
Meigher, S. C., Major, N.Y. Hosp., 525 E. 68th St., New York.
Metzger, William R., Major, 2706 Avenue R, Brooklyn.
Meyer, Nathan, Capt., 106 Ft. Washington Ave., New York
Miller, Meyer G., Capt., BX 901, Tupper Lake.
Millman, Louis J., Capt., 2350 Creston Ave., New York.
Moll, Frederick C., Capt., 2057 East Ave., Rochester.
Mondelli, Mario Angelo J., Capt., 366 Broome St., New York.
Moskowitz, Eugene, Capt., 220 N. Columbus Ave., Mt. Vernon
Mullen, Aloysius J., Capt., 4966 Broadway, New York.
Nachtigall, Henry B., Capt., 2390 Tiebout Ave., Bronx.
Nelson, Irving, Lt. Col., 1104 Avenue L, Brooklyn.
Norins, Howard, Capt., Metropolitan Hosp., Welfare Island.
O'Brien, John J., Major, 30-11 Murray Lane, Flushing.
Oehler, Harry R., Capt., 546 Woodlawn Ave., Buffalo.
Ogilvie, John B., Major, 405 E. 72d St., New York.
Orlando, Lorenzo, Capt., 2746 Matthews Ave., Bronx.
Palamar, Michael, Capt., 84 W. John St., Little Falls.
Peckins, Herman, Capt., 1307 Sheridan Ave., New York.

PHYSICIANS SEPARATED FROM SERVICE

New York—Continued

Pemsler, Abraham B., Major, 1840 Grand Concourse, Bronx.
Penn, Louis, Capt., 1718 Crotona Park East, Bronx.
Post, Arthur, Major, 2 East 85th St., New York.
Powell, John H., Capt., 24 Ascan Avenue, Forest Hills.
Pschierer, Francis Marie J., Capt., 361 Porter Avenue, Buffalo.
Pyle, Emmord V., Capt., 5 Orchard St., Middletown.
Reiger, Anthony C., Major, 135 Puritan Ave., Forest Hills.
Richman, Samuel, Major, 1049 Park Ave., New York.
Roemer, Edward P., Major, 77-20 Austin St., Forest Hills.
Root, Nathan N., Major, 135-48 77th Ave., Kew Gardens.
Rothstein, David, Capt., 35-46 74th St., Jackson Heights.
Ruby, Nathan, Capt., 1331 E. 19th St., Brooklyn.
Russell, Nelson G., Major, 135 Linwood Avenue, Buffalo.
Sabin, Anthony G., Major, 200 Mosholu Parkway South, Bronx.
Scheremeta, William W., Major, 45-38 42nd St., Sunnyside.
Schiffer, Ira L., Capt., 15 Featherbed Lane, Bronx.
Scuccimarra, David J., Capt., 618 South St., Peekskill.
Serio, Joseph C., Capt., 92 Fargo St., Buffalo.
Shay, William A., Capt., 109 N. Main St., Cortland.
Siegel, Solomon, Capt., 1784 Bryant Ave., Bronx.
Slovak, Joseph, Capt., 12 Union St., Schenectady.
Smith, Charles M., Capt., 128 E. Main St., Waterloo.
Solomon, Sydney, Major, 414 Brook Ave., New York.
Sperrazza, Augustine J., Capt., 2115 24th Ave., Astoria.
Stanford, Henry J., Capt., 69-10 Yellowstone Blvd., Forest Hills.
Tatkow, Nathaniel, Capt., 630 Avenue M, Brooklyn.
Tausend, Milton E., Capt., 111-23 76th Rd., Forest Hills.
Throne, Harry M., Capt., 1385 Shakespeare Ave., New York.
Till, Solomon, Capt., Broadway, Port Ewen.
Tosti, Vincent G., Major, 60-29 Putnam Ave., Ridgewood.
Touroff, Arthur S. W., Lt. Col., 1192 Park Ave., New York.
Tryka, Bruno J., Major, 43 N. Main St., Perry.
Urbont, Alex. R., Capt., 783 Beck St., New York.
Venet, Louis, Major, 96 E. 208 St., New York.
Warnock, George H., Capt., 216 Putnam Ave., Freeport.
Werner, Irving, Major, 112 Murray St., Binghamton.
White, John D., Capt., 48 Bellwood Pl., Rochester.
Zeman, Michael S., Capt., 12 E. 97th St., New York.
Zipser, Frederick S., Capt., 168-04 35th Av., Flushing.

Ohio

Anderson, John G., Major, Broadway, Lynchburg.
Arn, Roy D., Lt. Col., 258 Greenmont Blvd., Dayton.
Beers, George W., Capt., 2020 Mahoning Rd., Canton.
Behm, Alton W., Capt., 112 South St., Chardon.
Boukalik, William F., Lt. Col., 20030 Scottsdale, Cleveland.
Braden, Spencer, Lt. Col., 1344 Hanna Bldg., Cleveland.
Callander, Adelbert R., Major, 62 N. Franklin St., Delaware.
Camp, Kenneth E., Capt., 2028 Felecia Ave., Youngstown.
Couch, Cleon C., Major, 2064 Adelbert Road, Cleveland.
Deitchman, Louis S., Major, 1841 Goleta Ave., Youngstown.
Egli, Edwin B., Major, 222 W. Lincoln Way, Lisbon.
Evans, Harrison S., Lt. Col., *Worthington.*
Feldman, Stanley L., Capt., 9409 Columbia Ave., Cleveland.
Foley, William T., Capt., 558 Howell Ave., Cincinnati.
Goldberg, Maurice E., Capt., 1434 Cory Drive, Dayton.
Goldin, Ralph R., Capt., 230 S. Cole St., Lima.
Hamsher, John F., Lt. Col., St. Paris.
Harkey, James M., Capt., 237 33d St., N.W., Canton.
Koeckert, Herbert L., Major, 17909 Landseer Road, Cleveland.
Kraus, Karl J, Capt., 4564 Paddock Rd., Cincinnati.
Langacher, Karl T., Capt., 606 Andover Rd., Mansfield.
Lapirow, Harry, Capt., 316 Hearne Ave., Cincinnati.
McCready, Robert G., Capt., 57 Grand Ave., Akron.
Mack, James R., Capt., Belvedere Bldg., Cincinnati.
Martin, George I., Lt. Col., Miami Valley Hosp., Dayton.
Meyer, Donald D., Capt., University Hospital, Columbus.
Moore, Samuel T., Capt., University Hospitals, Cleveland.
Oakes, Milton C., Major, 245 Delaware St., Lexington.
Ockington, James W., Major, 17000 Hilliard Rd., Lakewood.
Ostergard, Robert P., Major, University Hospital, Cleveland.
Pastor, Julius W., Capt., 3170 Ashwood Rd., Cleveland.
Pollack, Alexander, Capt., 391 Berkeley Road, Columbus.
Rossen, Joseph McK., Capt., 13813 Clifton Blvd., Lakewood.
Ruppersberg, Anthony Jr., Lt. Col., 2585 E. Main St., Columbus.
Sacks, Leon J., Major, 370 Bell St., Akron.
Skimming, Louis H., Capt., 2601 Central Ave., Middletown.
Sofranec, J. J. Jr., Capt., 118 Williamson Ave., Youngstown.
Sterne, Eugene H., Jr., Capt., 3645 Washington Ave., Cincinnati.
Tirey, James W., Capt., Anna.
Tramont, Charles B., Major, Route 1, Mt. Vernon.
Vinnedge, William F., Major, 738 Main St., Hamilton.
Vorhies, Gerald E., Capt., Scio.
Wadsworth, Francis M., Lt. Col., 57 S. Mulberry St., Mansfield.

Oklahoma

Anderson, Leighton L., Capt., 800 E. 13th St., Oklahoma City.
Barnes, Harry E., Capt., 541 SW 29th St., Oklahoma City.
Blair, Clifford J., Major, 3021 N.W. 15th St., Oklahoma City.
Borecky, George L., Capt., 2316 NW 16th St., Oklahoma City.
Bradley, Frank L., Capt., East. Okla. State Sanat., Talihina.
Brown, Spencer H., Capt., Fort Gibson.
Cunningham, Charles D., Lt. Col., 208 Park, Seminole.
Denyer, Hillard E., Major, 502 E. 11th St., Chandler.
Dorwart, Frederic G., Major, 1021 Elgin Ave., Muskogee.
Dube, Paul H., Capt., Shattuck.
Etter, F. S., Lt. Col., 504 Union Nat. Bank Bldg., Bartlesville.
Ewell, William C., Lt. Col., 216 E. 19th St., Tulsa.
Graham, John A., Capt., Univ. Hosp., 800 N.E. 13th, Oklahoma.
Howard, Robert B., Major, 1200 N. Walker, Oklahoma City.
Hubbard, Ralph W., Lt. Col., 1523 N.E. 9th St., Oklahoma City.
Kennedy, Louis J., Lt. Col., Charity Hosp., Clinton.
Kimball, George H., Lt. Col., 912 Med. Arts Bldg., Oklahoma City.
Kuhn, J. F., Jr., Major, 1102 Med. Arts Bldg., Oklahoma City.
Lester, Eugene F., Jr., 1st Lt., 736 N.E. 13th St., Oklahoma City.
Messinger, Robert P., Capt., 807½ N.W. 23d St., Oklahoma City.
Neff, Everett B., Capt., 909 N.W. 37th St., Oklahoma City.
Pearson, Daniel B., Jr., Capt., 1308 N. Hudson, Oklahoma City.
Raff, Joseph S., Major, Madill.
Reynolds, John H., Major, 605 E. Broadway, Muskogee.
Ritan, Andrew, Major, Tahlequah.
Sanger, Welborn W., Major, 380 Masonic Bldg., Ponca City.
Terry, John B., Capt., Key Bldg., Wewoka.
Toma, Paul, Capt., Granite.
Witten, Harold B., Capt., Harrah.

Pennsylvania

Adonizio, Anthony C., Major, 294 William St., Pittston.
Arnao, James, Capt., 2503 S. 62d St., Philadelphia.
Bavendam, Frederick A., Capt., 249 S. 41 St., Philadelphia.
Beck, Joseph R., Major, 5018 Saul St., Philadelphia.
Brubaker, Robert E., Major, 4501 Chester Ave., Philadelphia.
Buckland, Wilmer B., Major, 4406 Locust St., Philadelphia.
Campus, Joseph L., Capt., 3401 Englewood St., Philadelphia.
Combs, Peter S., Major, Phila. Gen. Hospital, Philadelphia.
Coppes, Charles Daniel, Capt., 421 Green Lane, Philadelphia.
Crowl, Edward C., Major, 38 W. Fourth St., Bloomsburg.
Davidson, Max, Capt., 4055 Perrysville Ave., Pittsburgh.
Devlin, Laurence P., Lt. Col., 4712 Richmond St., Philadelphia.
Di Silvio, Dominic N., Major, 4509 Stanton Ave., Pittsburgh.
Dunkelberger, J. A., Major, Grad. Hosp., 19 & Lombard, Phila.
Eddinger, Leo C., Major, 703 N. Fourth St., Allentown.
Finn, Joseph L., Major, 6118 N. Broad St., Philadelphia.
Fraley, Henry W., Major, 133 Main St., Leechburg.
Glocker, Rudolph K., Major, 701 Main St., Royersford.
Golove, Jacob, Major, 6418 Elmwood Ave., Philadelphia.
Greenfield, Alfred R., Capt., 127 7th St., McKeesport.
Hawkins, Walter D., Capt., 1005 N. 2d St., Harrisburg.
Hodgson, Eugene W., Major, Houston.
Hogan, Patrick J., Capt., 4524 N. 18th St., Philadelphia.
Horowitz, Jules J., Capt., 178 W. River St., Wilkes Barre.
Hudson, Victor T., Capt., St. Luke's Hosp., Bethlehem.
Javois, Alexander J., Lt. Col., U. S. Marine Hosp., Pittsburgh.
Johnson, Thomas U., Capt., 172 Congress St., Bradford.
Keithan, John F., Major, 33 W. Court St., Doylestown.
Klopp, John B., Lt. Col., 1810 Edgemont Ave., Chester.
Kohn, David F., Capt., 46 Fairview Ave., Mt. Pocono.
Lally, Francis L., Capt., 328 S. Third St., Sharpsville.
Livingood, Clarence S., Major, 4710 Locust St., Philadelphia.
Lowright, Wallace J. Jr., Capt., Center Valley.
McAndrew, Lorain A., Capt., 448 Main St., Vandling.
McCurdy, Dino E. P., Capt., 4636 Grant Ave., Philadelphia.
McMurray, John S., Capt., 415 E. Wheeling St., Washington.
Manges, John P., Major, Scotland.
Masters, Raymond E., Major, 1144 Broadway, East McKeesport.
Matthews, W. F. Jr., Major, Dorseyville Rd., Rt. 2, Sharpsburg.
Olmes, Frank S., Capt., 116 Center St., Orwigsburg.
Perloski, Leo, Capt., Washington St., Middleport.
Petropoulos, Peter C., Capt., 4629 Walnut St., Philadelphia.
Proudfit, James P., Capt., 143 N. Avenue, Washington.
Ravetz, Elkin, Capt., 1612 N. 30th St., Philadelphia.
Rosenfield, Richard E., Capt., 5721 Darlington Rd., Pittsburgh.
Ruder, Carl L., Lt. Col., 550 Westover Rd., Pittsburgh.
Seifert, G. L., Major, 2202 E. Cumberland St., Philadelphia.
Selsman, Joseph V., Capt., 54th & Irving Sts., Philadelphia.
Smith, Robert R., Capt., George School.
Taboroff, Leonard H., Capt., 4742 N. 8th St., Philadelphia.
Virusky, Edmund J., Capt., 1010 N. Center St., Freeland.
Watson, J. R., Lt. Col., Standish Road, Rosslyn Farm, Carnegie.

PHYSICIANS SEPARATED FROM SERVICE

Rhode Island

Allen, Richard E., Major, 517 Pontiac Ave., Cranston.
Begg, Charles F., Capt., Rhode Island Hospital, Providence.
Bellaire, Richard P., Major, Rhode Island Hospital, Providence.
Dziob, John S., Major, 385 Ives St., Providence.
Gannon, Charles H., Lt. Col., 677 Broad St., Providence.
Grzbien, Stanley T., Capt., 206 Bellevue Ave., Providence.
Holdsworth, H., Capt., 299 Woonasquatucket Ave., N., Providence.
Kent, Joseph C., Major, 105 Fort Ave., Cranston.
Korb, Milton, Capt., 18 Larch St., Providence.
Possner, Howard E., Jr., Capt., 66 Kenyon Ave., Wakefield.
Sutch, Gabriel C., Capt., State Hosp. for Mental Dis., Howard.
Wittes, Saul A., Capt., 91 Great Road, Woonsocket.

South Carolina

Bickley, William E., Major, Box 26, Pendleton.
Folk, William H., Capt., 721 E. Main St., Spartanburg.
Howle, Myron G., Major, Summerton.
Miles, Louis S., Major, Box 24, Summerville.
Moorhead, William H., Major, Goldville.
Powe, Walker H., Jr., Capt., 405 Crescent Ave., Greenville.
Timmons, Thaddeus A., Lt. Col., Pamlico.

Tennessee

Bleecker, Phillip B., Major, 1011 N. Parkway, Memphis.
Bryan, Harry G., Capt., 706 S. Mansfield, Memphis.
Buchanan, Robert N., Jr., Major, Hendersonville.
Cook, William N., Capt., Columbia.
Didcoct, John W., Capt., 302 Caldwell Ave., Paris.
Evans, John W. Jr., Major, Bells.
Farrar, Taylor, Capt., RFD 7, Shelbyville.
Graham, James F., Capt., Scotts Hill.
Green, Arthur W., Major, 1725 Kansas St., Memphis.
Hamilton, John B., Lt. Col., 1123 Catawba St., Kingsport.
Henard, Carter Hal, Capt., Mosheim.
Howard, William T., Major, Covington.
Kennedy, John O., Capt., Rt. 6, Holston Hills, Knoxville.
Killebrew, Joseph B., Major, 226 Fleetwood Dr., Chattanooga.
Killeffer, John J., Major, Med. Arts Bldg., Chattanooga.
Kirtley, James A. Jr., Col., Woodlawn Drive, Nashville.
Lancaster, Augustus H, Lt. Col., 3495 Oak View Dr., Knoxville.
Leathers, James P., Capt., 1725 8th Ave., North, Nashville.
Mackey, William F., Capt., RFD #2, Whitwell.
Martin, William D., Capt., Route 6, Murfreesboro.
Moore, William S., Lt. Col., 1222 Union Ave., Memphis.
Morgan, Hugh J., Brig. Gen., Whitebridge Pike, Nashville.
Patterson, Russell H. Jr., Capt., 512 High St., Trenton.
Rogers, Benjamin C., Major, St. Thomas Hosp., Nashville.
Shipley, Alex B., Capt., 400 W. Hill Ave., Knoxville.
Smith, Joseph R., 1st Lt., 303 College St., Paris.
Strohmenger, Frank J., Lt. Col., Holston Valley Community Hospital, Kingsport.
Tullis, Isaac F., Jr., Major, 1286 Overton Park Ave., Memphis.
Tyson, William T., Jr., 1st Lt., 1707 Foster, Memphis.
West, Frederick, Capt., 3332 Kenilworth Drive, Knoxville.

Texas

Allin, Willis W., Lt. Col., 402 Garrity Road, San Antonio.
Armbrust, Charles A., Jr., Lt. Col., 3301 Junius, Dallas.
Blundell, James R., Col., 2220 Stanmore Dr., Houston.
Brasher, Ray V., Major, 112 Williamsburg Lane, Ft. Worth.
Bryant, George C. Jr., Major, Parkland Hospital, Dallas.
Burns, Robert B., Capt., Box 158, Giddings.
Carlson, Glenn D., Lt. Col., 8608 Inwood Road, Dallas.
Chandler, Edwin A., Major, Route 12, Box 321, Houston.
Davis, Charles Q., Lt. Col., 4107 Fannin St., Houston.
DePasquale, Francis L., Lt. Col., Vet. Adm. Center, Waco.
Edwards, Buell F., Capt., Johnson Bldg., Graham.
Elkins, Clyde F., Capt., 1803 13th St., Lubbock.
Frachtman, Hirsh J., Lt. Col., 5212 Caroline Blvd., Houston.
Green, John Leighton, Jr., Major, 3012 Silver St., El Paso.
Hawkins, Winfred W., Lt. Col., 2125 Morrow, Waco.
Heffner, Edward A., Major, 1101 N. Sylvania Ave., Ft. Worth.
Holley, Sion W., Major, 1625 S. Ninth St., Waco.
House, Royce E., Major, Baylor Hospital, Dallas.
Jones, Leonard B., Major, Box 605, Taft.
Jopling, Julian L., Major, 1107 Lake Drive, Taylor.
Kaplan, Hyman J., Lt. Col., Holland Bldg., Orange.
Kost, Louis B., Major, % Drs. Jinkins, 22d & I, Galveston.
Legg, Eugene P., Major, 3701 Maple, Dallas.
Lovelady, Roy R., Major, Santa Anna.
McClung, Hugh L., Capt., 7704 San Fernando Way, Dallas.
McIlhenny, W. I., Jr., 1st Lt., 218½ W. Woodlawn, San Antonio.
McKellar, Thomas F., Major, Pflugerville.
Mayo, Oscar N., Major, 2102 Elizabeth Drive, Brownwood.

Texas—Continued

Medford, Ulen G., Jr., Capt., 202 S. Raguet St., Lufkin.
Montgomery, William D., Major, Box 197, Thornton.
Morell, Willard B., 1st Lt., 106 W. Pecan St., San Antonio.
Neblett, Robert A., Capt., Canyon.
Novak, Lumir F., Major, 745 W. Houston St., San Antonio.
Ory, Lee K., Major, PO Box 110, Comanche.
Payne, Ralph B., Major, 211 Fisk Bldg., Amarillo.
Price, Enoch C., Capt., 1004 N. 34th St., Waco.
Reaves, Lovett M., Major, 4553 Bordeaux, Dallas.
Roosth, Harold, Major, Route 5, Tyler.
Rothe, Courand N., Major, 105 Adams St., San Antonio.
Salinger, Alfons, Capt., 3205 Fannin St., Houston.
Seastrunk, Oliver C., Lt. Col., Dechard Bldg., Franklin.
Stow, Robert C., Capt., 2811 Travis St., Fort Worth.
Tinterow, Maurice M., Capt., 1816 Ave. F, Galveston.
White, Louis L., Major, 1302 Rosemont St., Amarillo.
Wilson, Francis W., Lt. Col., Luling.
Yarbrough, Cecil G., Jr., Capt., 111 E. Michigan St., Midland.
Zedler, Garland G., Capt., 705 W. 21st St., Austin.

Utah

Cannon, Lawrence S., Capt., 29 S. State St., Salt Lake City.
Davis, Donald D., Lt. Col., 301 Judge Bldg., Salt Lake City.
Freeman, Ralph W., Major, Fillmore.
Jensen William E., Major, 1327 Roosevelt Ave., Salt Lake City.
Muir, Everett B., Major, 1408 Federal Way, Salt Lake City.
Phillips, Earl H., Capt., 1704 Harrison Ave., Salt Lake City.
Pugmire, Adrian S., Maj., 1703 Yalecrest Ave., Salt Lake City.

Virginia

Beavers, Charles L., Major, 410 Clay St., Franklin.
Buck, Frank N., Jr., Capt., 122 Florida Ave., Portsmouth.
Cline, Robert F., Capt., 618 Tennyson Ave., Winchester.
Ende, Milton, 1st Lt., 853 Commerce St., Petersburg.
Garnett, Alfred R., Capt., 526 Boissevain Ave., Norfolk.
Hamlin, Percy G., Lt. Col., State Hosp., Williamsburg.
Heilman, Elwood H., Capt., 1200 E. Broad St., Richmond.
Krapin, David, Major, 2115 Venable St., Richmond.
Lush, Lewis C., Major, 3610 Decatur St., Richmond.
Ransone, John T., Major, % W. R. Taylor, 138 Maneto Ave., Hampton.
Risher, John C., Major, Charlottesville.

Washington

Cole, Harold C., Major, 400 Boylston Ave., N., Seattle.
Davis, James V., Capt., Port Gamble.
Fairshter, Jacob J., Capt., Olympic Hospital, Forks.
Goiney, Bernard J., Capt., 517 9th Ave., Seattle.
Halvorsen, Clifford, Major, Steilacoom.
Link, Richard B., Lt. Col., 3312 N. 24th St., Tacoma.
Loree, David R., Lt Col., 212 W. 26th St., Vancouver.
Meier, Henry H., Capt., Route 8, Box 402AA, Tacoma.
Nichols, Erwin E., Capt., 919 South Lincoln, Port Angeles.
Olander, Carl W., Capt., Ellensburg.
Rankin, Francis W., Capt., 7914 Densmore, Seattle.
Rowe, Perry E., Capt., 2230 Harrison St., Everett.
Taylor, Edward D., Major, 403 N. Oak St., Centralia.
Watson, Wilbur E., Capt., 1833 38th Avenue, N., Seattle.
Young, Robert D., 1st Lt., 7624 E. Greenlake Way, Seattle.

West Virginia

Bertling, Marion H., Major, Box 295, McComas.
Hamilton, Richard, Major, 800 Second St., St. Mary's.
Jones, Ralph J., Capt., Bridgeport.
McClung, James R., Major, Shawnee Hills, Wheeling.
McCuskey, John F., Major, 605 Milford St., Clarksburg.
Myers, Junior W., Capt., Myers Clinic, Philippi.
Peskoe, Louis Y., Capt., Boomer.
Prioletti, Vincent, Capt., 305½ Main St., Weirton.
Shanes, Herbert N., Capt., Caretta.
Silverman, Mendel, Major, P.O. Box 904, Williamson.

Wisconsin

Babbitz, Albert L., Capt., 1962 W. Prospect Ave., Milwaukee.
Bach, Stanley M., Capt., 117 S. Butler St., Madison.
Goldstein, David N., Capt., 300 60th St., Kenosha.
Hagan, Robert K., Capt., Milwaukee Co. Hospital, Wauwatosa.
Kincaid, Charles K., Major, City Hall, Eau Claire.
McCabe, John O'D., Major, 208 E. Wisconsin Ave., Milwaukee.
Midelfart, Peter A., Major, 343 Gilbert Ave., Eau Claire.
Moffett, James L., Major, Montfort.
Schweiger, Lemont R., Capt., 1118 E. Glendale Ave., Milwaukee.
Thatcher, Donald S., Major, 2200 W. Kilbourn Ave., Milwaukee.
Weeks, Frank D., Major, 522 W. 2d St., Ashland.

MEDICAL OFFICERS RELEASED BY THE NAVY

NAVAL RESERVE MEDICAL OFFICERS RECOMMENDED FOR RELEASE FROM ACTIVE DUTY

California

Adams, John P.	Oakland
Agmar, Albert R.	San Francisco
Beahrs, Oliver H.	Pomona
Bear, Newman K.	Riverside
Bosshardt, Orval A.	Ontario
Branch, Charles H. H.	Pomono
Burnham, Clark J. Jr.	Berkeley
Cabell, Charles L.	Fresno
Charmak, David D.	San Francisco
Connell, De Bert W.	Berkeley
Daniels, Esli H.	Long Beach
Dahl, Clarence A.	San Pedro
Dewey, Earl T.	San Francisco
Diamond, Mortimer	Los Angeles
Dress, Lawler A.	San Francisco
Dunlavy, Kenneth J.	Healdsburg
Eiskamp, Ehler H.	Watsonville
Fitzgerald, Charles E.	Long Beach
Flinn, Edward F.	San Francisco
Flanders, Howard B.	Walnut Creek
Ford, Theophilus F.	Ontario
George, Lewis C.	Los Angeles
Goddard, Wilson P.	Mill Valley
Groskloss, Howard H.	El Segundo
Hall, Samuel P.	San Francisco
Hayden, Charles T.	Oakland
Hearn, Thomas M.	Van Nuys
Hohnstein, Floyd I.	Oakland
Hollingsworth, John B.	Oakland
Johnson, Joseph D.	Taft
Johnson, Oscar D.	Los Angeles
Lancaster, George G.	So. Pasadena
Lane, Henry G.	Palo Alto
Leet, Robert S.	Oakland
Litterer, Ammon B.	San Diego
Lynch, John C. Jr.	Stockton
MacGregor, James W.	Coronado
Maner, George D.	Los Angeles
Maser, James F.	Fresno
McCleave, Thomas C. Jr.	Oakland
McGranahan, James H.	Long Beach
Michael, Michael T.	San Francisco
Miller, Herbert G.	Palo Alto
Najjar, Constantine C.	Merced
Nebeker, Don P.	Los Angeles
Olmsted, George S.	Del Mar
O'Neill, James N.	Los Angeles
Puttler, Oliver L.	San Lorenzo
Redfield, Robert L.	Berkeley
Rice, Frank M.	San Francisco
Richardson, George C.	Sonora
Ross, Verne R.	Stockton
Rouff, Elliot A.	Pasadena
Scarborough, Robert A.	San Francisco
Schaupp, Karl L. Jr.	San Francisco
Scovel, Ralph E.	San Francisco
Seeley, Phillip A.	Burlingame
Steiss, Charles F.	San Francisco
Stevens, George A.	Beverly Hills
Taylor, Leland H.	Oakland
Torre, Emile D.	San Francisco
Trotter, Joseph T. Jr.	Pasadena
Uldall, Jorgen J.	San Francisco
Vento, John P.	Los Angeles
Watson, Harold G.	San Francisco
Wightman, Ardath H.	Laguna Beach
Wright, Wesley M.	Los Angeles
Yuskis, Anton S.	San Diego

Connecticut

Apuzzo, Anthony A.	New Haven
Bassin, Alexander L.	Hamden
Bellew, Raymond F.	Bridgeport
Carson, Joseph P. Jr.	Hartford
Cenci, Vencent P.	Hartford
Hartman, Frederick B.	New London
Roos, Allan J.	Bridgefield
Rosenberg, Harold A.	New Haven
Sette, Alfred J.	Stamford
Weiselberg, Hyman M.	Waterbury

Florida

Barge, William J.	Miami
Bell, John D.	Pensacola
Bowen, Louis R.	Eustis
Butt, Thomas C.	Orlando
Cowart, James T.	Tampa
Dean, Abbot M.	Warrington
Dowlen, Leonidas W.	Miami
Farringer, Howard R. H.	Hollywood
Graves, Adoniram J.	Jacksonville
Gwathney, George T., Jr.	Orlando
Spicer, Robert T.	Miami

Illinois

Arnal, Paul J.	River Forest
Bailey, John M.	Evanston
Bauman, Lucian	Chicago
Bengtson, Bengt N.	Maywood
Bonebrake, Harold V.	Chicago
Brotman, David M.	Chicago
Chern, Bernard V.	Chicago
Childs, Theron B.	Glencoe
Cohen, Bernard M.	Chicago
Croft, Joseph D.	Evanston
David, Charles B.	Chicago
Dehnert, Ernst F.	Chicago
Dostal, Lumir E.	Chicago
Draeger, Louis A. Jr.	Chicago
Dunn, Edward H.	Elgin
Ennis, Emery H.	Springfield
Forrest, Thomas F.	Woodstock
Fowler, John V., Jr.	Chicago
Gazda, Mace	Chicago
Gettleman, Eugene	Chicago
Gross, Harold T.	Chicago
Hartman, Clifford D.	Sublette
Hasterlik, Robert J.	Evanston
Huffman, John W.	Evanston
Jawor, Walter J.	Chicago
Kaufman, Jerome D.	Oak Park
Klein, Alfred J.	Chicago
Kratz, Leonard A.	Evanston
Larkin, Leo C.	Oak Park
Levy, Harry M.	Chicago
Lusk, William W.	Carlinville
Mackoff, Saul	Chicago
Marron, James W.	River Forrest
McMillian, John C., Jr.	Oak Park
Milligan, Bruce W.	Jacksonville
Moore, Jean W.	Danville
Murphy, John B.	Chicago
Nagel, Frank E.	Chicago
Norris, Reginald M.	Jacksonville
Olson, Clarence	Chicago
Palutsis, Stanley R.	Cicero
Pavletic, Nicholas B.	Chicago
Pope, Charles E.	Deerfield
Probasco, John L.	Roxford
Reuther, Theodore F.	Chicago
Rheingold, Joseph C.	Chicago
Richburg, Louis A.	Glencoe
Russell, Lawrence A.	Oak Park
Saunders, Hubbard P.	Chicago
Schroeder, William F. III	Rock Island
Shifrin, Max	Chicago
Shurtz, William G.	Chicago
Simons, Joseph	Chicago
Smith, Charles O.	Oak Park
Solomon, Ernest M.	Glencoe
Stanton, Herbert M.	Downers Grove
Sullivan, John L.	Amboy
Szymczak, Francis S.	Chicago
Thrasher, Irving D.	Chicago
Thurston, Eric W.	Chicago
Tracy, Paul C.	Chicago
Verhaag, Joseph E.	Chicago
Wallace, James H.	River Forest
Wangelin, Evans H.	Belleville
Werner, William B.	Pekin
Wittenberg, Carlton E.	Danvers
Zimmerman, Leo M.	Chicago

Massachusetts

Barr, Joseph S.	Boston
Baxter, Raymond H.	Marion
Bruce, Norman H.	Auburndale
Buddington, Westen T.	Newton Ctr.
Cenni, Louis J. Jr.	Worcester
Chamberlain, John W.	Belmont
Donahue, Lewis C.	Needham
Draper, Russell T.	Uxbridge
Eley, Richard C.	Boston
Farrington, Robert F.	Franklin
Fraser, William G.	Lynn
Gates, Paul P.	Acton
Goodwin, Robert H.	Dartmouth
Hafferty, William A.	Brookline
Harvey, Earle A.	Melrose
Hearne, Thomas M.	Melrose
Hindman, James H.	Lawrence
Hollowell, Frederick D.	Jackson
Hunter, Thomas	Shrewsbury
Johnson, Allen S.	Longmeadow
Joplin, Robert J.	Chestnut Hills
Klivansky, Marcus	Lynn
Krumbhaar, George D.	Brookline
Leary, Daniel L.	Newbury Port
Littlefield, Leland A.	Cambridge
Lulow, William V.	Brockton
Mahoney, Edwin M.	Holyoke
May, George E.	Wellesley Heights
Nelson, Herbert B.	Newton Center
O'Brien, Francis R.	Roxbury
Pelton, Thurlow H.	Pittsfield
Rosenberg, Joel	Natick
Ruggles, John K., Jr.	Hopkinton
Sears, Warren H.	Springfield
Segal, Samuel Jr.	Springfield
Styron, Charles W.	Boston
Sullivan, Raymond F.	Worcester
Szynal, John S.	Webster
Tegelberg, Julius J.	Worcester
Walsh, James R.	Framingham
Whitelaw, George P.	Boston

Michigan

Arscott, Edward F.	Rogers City
Ascher, Meyer S.	Detroit
Bohn, Zolton S.	Grosse Point
Brancheau, Lynus T.	River Rouge
Brukardt, Herman R.	Menominee
Cook, Carl S.	Holland
Curts, James H.	Saginaw
Dudzinski, Edmund J.	New Baltimore
Engel, Earl H.	Wyandotte
Flynn, John D.	Grand Rapids
Fortmann, Daniel J.	Lansing
Goetz, Angus G.	Grosse Pt. Farms
Herkimer, Daniel R.	Lincoln
Hiscock, Harold H.	Flint
Jackson, Howard C.	Kalamazoo
Jenkins, Elwood A.	Detroit
Joyce, Stanley J.	Detroit
Lowe, Kenneth H.	Battle Creek
Marwil, Thomas B.	Detroit
Moe, Carl R.	Kalamazoo
Murray, Charles R.	Saginaw
Nolting, Wilfred S. H.	Detroit
Paine, Raymond L.	Ann Arbor
Ralph, Leland P.	Grand Rapids
Reinsh, Ernest R.	Detroit
Rozan, Milton M.	Lansing
Sargent, Donald V.	Saginaw
Sayre, George S.	Detroit
Schneider, Curt P.	Detroit
Shellenberger, Herbert M.	Marshall
Spencer, Perry C.	East Lansing
Strickroot, Frederick L.	Detroit
Vincent, Edward H.	Kalamazoo
Weidner, Harold R.	Coldwater
Williams, Louis A.	Grand Rapids
Wishropp, Edward A.	Grosse Pointe
Young, Lloyd B.	Detroit

MEDICAL OFFICERS RELEASED BY THE NAVY

New Jersey

Berkow, Samuel G.	Perth Amboy
Bowman, Ned O.	New Brunswick
Davis, Thomas C.	Millburn
Deichman, Charles H.	Morristown
Evans, Edgar J.	Denville
Faux, Frederick J.	Woodbury
Gershman, Joseph G.	Dumont
Hewson, George F.	Newark
Hitzemann, Louis A.	Maywood
Losito, Amedeo J.	Harrison
Lynch, Maurice M.	Hackensack
Mills, Stephen D.	Westfield
Mitchell, Willis B.	Phillipsburg
Morfit, Henry M.	Englewood
Nicoll, George L.	Dover
Pavia, John R.	E. Orange
Scala, Armando	Suffern
Sturr, Robert P.	Haddon Heights
Varriano, John L.	Jersey City
Walker, Donald H.	Elizabeth
Walker, Harold G.	Wyckoff

New York

Ahouse, John	New York
Alexander, Hyman	Brooklyn
Barbieri, Vito Jr.	Hastings
Barclay, Alexander J.	Newburgh
Beneventi, Francis A.	Kew Gardens
Bennett, Arthur L.	Buffalo
Binkley, James S.	New York
Blau, Abram	New York
Brink, Robert H.	Cortland
Brody, Philip	Brooklyn
Burke, William H.	Elmira
Cammer, Leonard	Arverne
Christensen, Bryant E.	New York
Clark, David G.	New York
Comstock, Edwin F.	Wellsville
Cotton, William R.	Brooklyn
Damrosch, Douglas S.	New York
Deely, Thomas H.	New York
Dickson, William B.	Hertford
Dobson, Clarence D.	Great Neck
Drew, Jeremiah E.	New York
Drewry, Henry H.	New York
Elias, Herbert L.	Rockville Center
Ellsworth, Herman C.	Ithaca
Fairstein, Samuel J.	Mt. Vernon
Farrell, James I.	Utica
Fink, Harold	Brooklyn
Fitzgerald, Dudley B.	Lockport
Friedman, Harold A.	Rochester
Fuller, Clarence C.	New York
Gardiner, Charles E.	Whitney Point
Gilbert, Charles L.	New York
Goldberg, Moses M.	Woodhave
Groesbeck, Harvey P. Jr.	Schenectady
Gwynn, Charles A.	Syracuse
Hanna, William H.	Bronx
Hannan, Bernard D.	Glens Falls
Harris, J. W.	Oakwood Heights, L. I.
Hartman, Daniel L.	New York
Herold, Ross E.	Central Islip
Hixson, George D. II	Lockport
Hurwitz, Samuel	Jamestown
Jackson, John W.	Bayside
Jacobson, Sheldon A.	Riverdale
Kelley, Kenneth	New York
Kilgour, Duncan G.	New York
Kolodny, George R.	Brooklyn
Krom, John B.	Kingston
Laidlaw, John B.	Rochester
Levin, Ralph T.	New York
Levine, David R.	Brooklyn
Lilly, Gerald T.	Rockville Center
Lippschutz, Eugene J.	Buffalo
MacLean, John A., Jr.	New York
Mazzola, Nunzio J.	Brooklyn
McLean, Hugh A.	New York
Mead, DeWitt C.	Fulton
Millard, Ernest B.	Ilion
Miropol, Harold S.	Brooklyn
Munzer, Maurice H.	New York
Napp, Louis J.	Middletown

New York—Continued

Novek, Joseph G.	Utica
O'Brien, James L. M.	Cedarhurst, L. I
O'Connor, John J. Jr.	Garden City, L. I.
Peters, Stanley B.	Silver Creek
Propp, Simon	Albany
Quinlan, James W.	Rochester
Quinn, Wm. B.	Jackson Heights, L. I.
Reedy, William F.	Buffalo
Reynolds, Chester L.	Rochester
Ross, Donald P.	Lewiston
Rossman, Morris M.	Freeport
Rusch, Henry A., Jr.	Oyster Bay
Sackin, Israel J.	Brooklyn
Schomer, Alexander	New York
Schwentker, Francis F.	Larchmont
Schenk, Kenneth W.	Northport
Shaughnessy, Daniel C.	Harkimer
Smith, Lionel O.	Binghamton
Snopek, Charles F.	St. Albans
Steiner, Morris	Brooklyn
Stern, Jacob E.	Richmond Hill, L. I.
Tancer, M. Leon	Brooklyn
Thomas, Lewis	New York
Vander Veer, Albert H.	Albany
Wagner, Philip V.	New York
Webster, George V. O.	New York
Weintreb, Morris	Brooklyn
Withington, Lawrence F.	Watertown
Woodward, John F. Jr.	New York

Ohio

Barker, Taylor W.	Cincinnati
Basinger, Norman E.	Elyria
Botsch, Bernard	Toledo
Brown, Joseph E.	Cleveland Heights
Cukerbaum, Alfred R.	Youngstown
Duncan, Charles H.	Columbus
Errington, Allison F.	Akron
Feiman, Daniel T.	Canton
Gray, James	Rocky River
Hirsh, Leon S.	Cincinnati
Klewer, Harold W.	Toledo
Klopfenstein, Alpha R.	Toledo
Lind, Samuel C.	Cleveland
List, Ellis W.	Andover
Martin, Kent E.	Cincinnati
Nuckolls, Chester R.	Cleveland Heights
Riddell, Malcolm M.	Fremont
Schumacher, Arthur H.	Lakewood
Strohmenger, Warren L.	Wyoming
Thomasson, Leslie H.	Cleveland
Vollmer, James E.	Cincinnati
Wetzel, Ralph E.	Tallmadge
Whitehead, Raymond N.	Bowling Green
Yeip, Melvin F.	Euclid

Pennsylvania

Brackbill, Allen G.	Paradise
Brown, Kent L.	Boyds Mills
Clarke, Frederick T.	Easton
Corbett, William T.	Mauch Chunk
Deaver, Joshua M.	Philadelphia
Domanski, John J.	Delaware Co.
Dozier, Paul	Philadelphia
Eskin, Albert	Philadelphia
Geckeler, George D.	Jenkintown
Gershon-Cohen, Jacob	Philadelphia
Hafer, Jesse G.	Pottstown
Horton, Park M.	New Milford
Hutton, Edward H.	Hanover
Kaufman, Samuel R.	Wilkes-Barre
Le Grand, Robert H.	Philadelphia
Massaniso, Frank P.	Philadelphia
Morgan, Theodore J.	Pittsburgh
Page, Henry F.	Philadelphia
Polentz, Paul F.	Philadelphia
Ricker, Charles T.	Cheltenham
Rohm, Jack Z.	Carnegie
Saska, August	Pittsburgh
Slater, Ralph L.	Upper Darby
Tidd, Ralph M.	Erie
Tomlinson, John W.	Sharon Hill
Wasley, Douglas C.	Linwood
Wesner, William N.	Johnstown

Texas

Coates, Elmer T.	San Antonio
Cochran, Ernest W.	Trinity
Cox, Abram M.	Longview
Crain, Edwarl L. Jr.	Houston
Deason, Loyd S.	Henderson
Eckhardt, Kleberg	Corpus Christi
Graves, Edwin G.	Houston
Guynes, William A.	Mathis
Hamrick, Wendell H.	Houston
Hudson, Richard L.	Smithville
Matros, Nathaniel H.	Corpus Christi
Maxwell, Hal W.	Myra
McDaniel, Walter S.	Houston
Moet, Joe Louis	La Feria
Morris, Abner J.	Fort Worth
Morris, Archibald T.	Dallas
Oliver, John S.	Houston
Patteson, James L.	Houston
Rehfeldt, Frederick C.	Fort Worth
Rumph, Quah	Houston
Sigler, Robert J.	Corpus Christi
Southerland, William I.	Sherman
Stackhouse, Howard Jr.	Houston
Swetland, Douglas R.	Houston
Wolters, Carlton E.	Shiner

Utah

Broadbent, Leroy V.	Salt Lake City
Christensen, Norman A.	Brigham City
Horne, Albert M.	Salt Lake City
Hosmer, John A.	Midvale
Kuhe, Emil B.	Salt Lake City
McLaughlin, Richard F.	Price
Orme, James F.	Tooele
Reese, Owen G.	Salt Lake City
Stevenson, Vernon L.	Salt Lake City
Taylor, Albert R.	Provo
Vance, Cyril L.	Salt Lake City

Vermont

Fregosi, Henry J.	Proctor
Page, Russell S., Jr.	Hyde Park
Quinn, Edward J.	Castleton
Ravit, George J.	Rutland
Rees, Walford T.	Burlington

Washington

Adix, Henry V. Jr.	Seattle
Capell, Harry J.	Yakima
Kretzler, Harry H.	Edmonds
Kuljis, Dominic A.	Bellingham
Lockwood, William W.	Spokane
Powell, Archie C.	Seattle
Stroh, James E.	Seattle
Tuell, Joseph I.	Seattle

Wisconsin

Benjamin, Hiram B.	Wauwatosa
Calvy, Donald W.	Fon du Lac
Campbell, Paul E.	Waukesha
Carney, John L. P.	Renton
Collopy, Paul J.	Milwaukee
Conley, James E.	Watertown
Conway, James P.	Milwaukee
Davies, Gwilyn	Waukesha
Dryer, Raymond B.	Poynette
Galgano, Rocco S.	Delaware
Green, Donald M.	Wausau
Grimm, Joseph J.	Milwaukee
Gunderson, Clayton B.	Everett
Harris, Arthur J.	Adams
Hershberger, Lloyd R.	New Glarus
Jensen, Richard A.	Menasha
Kelly, James D.	Wauwatosa
Krembs, Martin A.	Stevens Point
Kronzer, Joseph J.	Oshkosh
McCormick, Stuart A.	Madison
Monroe, Maurice E.	Hartford
Rice, Maurice G.	Stevens Pt.
Taxman, Joel E.	Milwaukee
Tegtmeyer, Gamber F.	Milwaukee
Wear, John B.	Madison
Wirthwein, Carlton	Milwaukee
Zimmerman, Felix H.	Watertown

ORGANIZATION SECTION

THE PUBLIC RELATIONS OF AMERICAN MEDICINE

Morris Fishbein, M.D.
Editor, The Journal of the American Medical Association
CHICAGO

Centuries ago the profession of medicine was little concerned with public opinion. Medical knowledge was concealed in mystery. Latin was used by physicians in their discussions and in their prescriptions. Patients were never admitted into the inner sanctum. Medical books were written in a language difficult to understand. The nomenclature of disease, of drugs and of operative procedure was concocted to preserve secrecy. The medicine of those days had little to give for the public good compared to what modern medicine has to offer. Perhaps concealment of the limitations of medical knowledge was desirable for the maintenance of public respect. Often people admire most that of which they know least.

Medicine was not, however, the only human undertaking that kept from people generally information of its activities. Governments have from time immemorial kept from the people whom they govern the information that the people have needed to evaluate accurately what their governments are doing for them. Great industries have often kept from the consumers of their products and even from the stockholders the intimate details of their activities. The present century, however, has seen a striking change in attitudes. Leaders now realize that public good will can do much toward success in achieving well warranted objectives. The development and maintenance of good will is the fundamental objective of the profession of public relations. However, experience has demonstrated through experimental evidence and through well documented case histories that public relations technic, like any well conceived therapy for any disease that occurs to the human body, is limited in its success by many uncontrollable factors. The legendary case history in the field of public relations is the story of the change in public attitude toward John D. Rockefeller. The early days of the development of Standard Oil and particularly its relations with labor brought upon Mr. Rockefeller a good deal of public condemnation. The pioneer public relations expert Mr. Ivy Lee was summoned. According to legend, Mr. Ivy Lee stated that it would be difficult indeed to create good will for the John D. Rockefeller whom the public had in mind but that it might be possible to create a different John D. Rockefeller who would easily earn public commendation. Thus came the great philanthropist to whom we owe the Rockefeller Foundation, the International Health Board, the University of Chicago and similar agencies. The transition period is still in the minds of many whose period is contemporaneous with that of Standard Oil. The success of Goebbels and Mussolini in swinging entire nations to unification behind beliefs that were essentially unsound might be cited as proof that public relations in a totalitarian nation can sell even an unsound proposal. However, the history of Germany and Italy proves that an unjust or unfair proposal cannot be sold indefinitely. Sooner or later the public becomes aware of the inefficiency or the inadequacy of the product. Thereafter no amount of public relations effort can be successful in maintaining public confidence. In a democracy such as ours not even the government can monopolize a public relations effort. The public relations activities of industries, professional associations, nonprofit philanthropies and governmental agencies are competitive for the good opinion of the people.

REPORT ON PUBLIC RELATIONS

The application of these principles to the relations of American medicine to the medical profession and to the people was carefully considered at a conference called by the Council on Medical Service of the American Medical Association at a meeting in November 1945. From that conference came a report which was presented to the House of Delegates at its meeting in December and which received the approval of the House of Delegates. The report of the special committee of the conference on public relations indicated that two different public relations efforts are essential for American medicine. One is concerned with the members of the medical profession and with various medical organizations; the other is concerned with the relations of medicine to the public.

PUBLIC RELATIONS OF MEDICINE FOR THE PHYSICIAN

Thorough education of the medical profession is a necessary preliminary to the establishment of efficient public relations with the public. It is difficult to get physicians to inform themselves concerning current problems in social medicine and in medical economics. Many physicians will not acquire the necessary information even though it is given to them through national, state or local medical publications. An informed medical profession is, however, essential to unification of effort and to any attempt to acquaint the public with the ideals that underlie our objectives.

By the nature of medical organization in the United States the majority of effort to reach the individual physician with necessary information must be made by the county and state medical societies. The Journal of the American Medical Association is the most widely read of all medical publications. But even in The Journal many readers carefully avoid the proceedings and minutes of official committees and boards and councils. I have watched for thirty years various attempts to induce the American physician to inform himself fully on medical economic matters and to participate fully in the efforts necessary to reach the public and the Congress. The American Medical Association sent a special periodical devoted wholly to medical economics without charge to every Fellow of the American Medical Association. It was not read by enough regularly interested readers to make its maintenance desirable. The Board of Trustees therefore discontinued the publication of the *Bulletin* and restored the discussions of medical economics and medical legislation to the pages of The Journal. The reasons underlying the disinterest of great numbers of the medical profession in these problems that are essential to their welfare are probably the same as underlie the disinterest of a great number of citizens in similar problems that concern them.

The advancement of medical science with the increase in specialization, the formation of great numbers of specialistic medical societies, the installation of the compulsory hospital conferences, the insistence on long internships and residencies which prolong extensively the preparation of the doctor, so that his actual years of practical work are limited, have all contributed to lessening the opportunity of the individual physician to participate fully in the work of his county and state medical societies. This attention has been turned more and more to the strictly scientific aspects of his practice. Perhaps a necessary stimulus to secure his interest in medical economic affairs would be an immediate and violent attack on his pocketbook. The theoretical possibility of such an attack invoked in the establishment of a compulsory sickness insurance system does not particularly disturb him. He appears confident that his organization will look after his interest. Moreover, it is evident, and indeed the promoters of socialized medicine do not hesitate to promise, possibly with tongue in cheek, that under a socialized system the one third of the profession who have the lowest incomes would probably benefit materially.

An intensification of interest of the majority of the medical profession, and particularly of leaders in the various specialties, in the social and economic aspects of medical service is exceedingly desirable. Much of our public relations effort must be directed at the earliest possible moment to securing just such an interest—to securing, in fact, an active participation beyond even the subscription of funds. Every physician should have full knowledge of what is involved in current legislative proposals and should participate fully in the effort to extend such information to the public.

Careful consideration was given by the Board of Trustees of the American Medical Association some years ago to the question of making certain that essential information reached at least the physicians who are primarily responsible for the conduct of the public affairs of American medicine. As a first step in this direction, even before the establishment of the Council on Medical Service, the Board of Trustees developed a letter to be sent regularly without charge to such physicians. In the compilation of the mailing list it was discovered that the number of such men constitutes only a small percentage of the total number of physicians in the United States. Approximately 190,000 physicians are licensed to practice medicine, and of these about 155,000 are actually in practice. Membership in the American Medical Association includes well over 125,000 physicians. The Fellowship in the Association approximates 70,000 physicians. A careful listing of the physicians in the United States who carry on most of the public work of medicine yielded nearly 3,000 names. These are the officers (including the councils) of the state medical societies, the members of the House of Delegates, the officers of national medical associations not rigidly scientific in their objectives and the editors of state medical journals and of important county medical society bulletins. News letters are more extensively read than any other type of informational material thus far developed. More recently the Council on Medical Service has initiated and carried on the news bulletins which it now sends both from Washington and from Chicago to interested and active leaders.

Significant also are the regional conferences conducted by the Council on Medical Service as a means of enlightening medical workers in public affairs. Even though these regional conferences are thrown open to attendance by any member of the medical profession, the attendance seems to be voluntarily and narrowly limited by the will to work of those in the area served.

In choosing the title for this address I carefully made it "The Public Relations of American Medicine" rather than "The Public Relations of the American Medical Association." The American physician has become an important figure in the social and economic life of our country. He does not obtain his information in public affairs and in the field of medical economics solely from the publications of his own organizations. Much of what he hears and reads comes to him through agencies that are not the official agencies of the medical profession. Exactly as he was compelled in a previous era to make his own distinction in the authenticity of scientific data presented in a variety of periodicals, of claims for therapeutic agents offered in original allegedly scientific contributions and in advertising of physical devices, of foods and of educational institutions, so must he now depend on his own ability to evaluate evidence in the field of medical economics. In an earlier day the proprietary medicine manufacturers, the promoters of peculiar physical apparatus, the owners of some 165 medical colleges were the purveyors of highly questionable data which the physician himself had to evaluate. Then came the Councils on Pharmacy and Chemistry, on Medical Education and Hospitals, on Foods and Nutrition and on Physical Medicine, and later the Council on Industrial Health, to study new drugs, new devices and new proposals to assemble all relevant data and to evaluate them and to place on those which seemed to merit approval an indication of their acceptance. In the field of medical economics there was not, until the establishment of the Council on Medical Service, any authoritative agency that could make such an evaluation. The Bureau of Medical Economics of the American Medical Association was charged with assembling data concerning all matters in the field of economics in medicine, and it published during the period of its greatest efficiency before the war, when it was adequately served with personnel, a vast amount of important and reliable data.

DIAGNOSING THE PROBLEM

The accumulation and assembling of sound factual data is fundamental to any public relations effort in the field of medicine or in any other field. In understanding the public relations effort of medicine, an adequate diagnosis of the problem is essential.

Mr. Carl Byoir, well known expert in public relations, calls attention to the fact that current headlines documenting the swing of nation after nation to the left are a warning signal. "Obviously," he says, "capitalism as a way of business and a way of life can survive in our democracy only if enough people are convinced that their best interests are served by it. . . . In the final analysis, public relations is long-range planning." By promoting interest in the medical profession with the general public, public relations will pave the way for better relationships with future employees who will be recruited from the public, with the patients who are the public and with government officials who not only are part of the public but who like to feel that they represent the public's opinion.

The first task of a public relations effort is to determine the public whose favorable opinion is to be sought and to plan a public relations program directed to that public. What do the people who are the patients of the physicians, and the legislators who are not only patients but who also represent people generally, think about medicine? Do they have opinions that are unfavorable to the medical profession? After scientific research into such opinions have revealed their nature and has indicated practices that are unsatisfactory to the people, we must determine whether or not it is possible to change such practices and thereby to change opinion. If the practices should not be changed, the public must be convinced of their necessity.

In the field of medicine it has become clear, both in the United States and in Great Britain, as has already been well established, that the relations of the individual physician to the individual patient are on a substantially sound basis. The public in general does not express resentment against the individual physician. There are, of course, instances in some communities in the United States in which some physicians have been tactless or careless or outright greedy in assessing costs for medical service to their patients. When in any community the general practice of medicine or of any other necessity of human life becomes so costly that it is not generally available to the vast majority of the people, resentment is bound to develop among the people against the purveyor of either a commodity or a service. In the United States as a whole the high standard of living and the average income of the worker have been sufficient to permit him, in the vast majority of cases, to meet the costs of medical care. The difficulty arises, however, as innumerable economists and social service workers have pointed out, when catastrophic illness strikes as an emergency. Even most of our wage earners in the higher levels are often unprepared for a major surgical operation, for a considerable stay in the hospital, for a serious siege of pneumonia or gastric ulcer or for a chronic psychiatric disturbance.

PUBLIC RELATIONS ACTIVITIES FOR THE PUBLIC

The American people do not question the quality of medical service available in the United States. The medical profession has utilized the press, motion pictures, exhibits, the radio and every other means of dissemination of information to educate the Americen people as to the advances of medical science Nothing even approximating this educational effort has been accomplished in any other country in the world. In this work the leadership of the American Medical Association is acknowledged and is recognized by innumerable agencies. Press associations like the Asociated Press, the United Press and the International News Service cooperate fully. The broadcasting chains (particularly the National Broadcasting Company, over whose channels for almost a decade there have gone regularly magnificent programs of health education) have published their recognition of merit. Exhibits disseminated by the Bureau of Exhibits are requested far beyond our ability to supply them. Hundreds of thousands (if not millions) of letters have gone directly to the public from the Bureau of Health Education, the Bureau of Investigation and the various Councils of the Association and indicate public confidence in the information provided. The extension of scientific contributions from all the periodicals of the Association to the press and the radio, the efficient arrangements for extending the scientific advances reported at various scientific sessions of the Association, which have begun to be imitated by other organizations in the field of science, the lectures by the members of the headquarters staff, are additional means that are extensively employed. *Hygeia* is now recognized as the most successful exclusively health periodical ever developed in the United States; today it is more quoted by newspapers, digest magazines and other publications than any other periodical in this country. In all of these ways the American Medical Association has demonstrated its ability to inform the public about the advancement of medical science and the services that physicians can render. Furthermore, through cooperative efforts with the National Education Association, the American Association for Health, Physical Education and Recreation and many similar bodies, health education is now being definitely integrated into the curriculum of our schools. Experts in the field of public relations who have been informed of these efforts and whose advice has been sought are unanimous in their statement that these activities constitute one of the most efficient performances in the field of public relations undertaken by any profit or nonprofit group in our country.

Of course the American Medical Association has not been alone in this effort to educate our people regarding medicine and health. The United States Public Health Service, many of the state medical societies, many public health officials and public health agencies and the great philanthropies, such as the American Cancer Society, the National Tuberculosis Association and the National Foundation for Infantile Paralysis, have contributed notably. Incidentally, all these agencies secure much source material from the American Medical Association. A survey of public opinion reveals that there is general public acceptance of the American Medical Association and its policies as far as concerns scientific progress, health education and protection of the public against inferior medicine and quackery. In one survey a majority of persons who knew of the American Medical Association stated that it was an organization primarily concerned with the advancement of medical science and with the protection of the public against fraudulent medicine.

THE PRIMARY PROBLEM IN MEDICAL PUBLIC RELATIONS

What, then, is the primary problem in public relations of the medical profession in the United States today and how is that problem being solved? When Bismarck introduced social security in Germany in 1883 there were few repercussions in the United States. Our concern with the problem began in 1911 after Lloyd George had converted Great Britain to national sickness insurance as a means of defeating the Labour Party in a British political controversy. The problem came prominently to the attention of the House of Delegates in the years from 1914 to 1916 and a resolution was adopted urging the American Medical Association to act in behalf of molding legislation for compulsory sickness insurance. A committee was appointed to study the problem, and a series of pamphlets, largely favorable to compulsory sickness insurance, was published under the auspices of the Council on Health and Public Instruction of the American Medical Association. However, when the dangers to the public interest of such a system became evident, medical opinion crystallized against state medicine, socialized medicine and compulsory sickness insurance. Medical opinion in the United States has been firmly opposed to such systems of medical care since that time. The majority of medical opinion opposed to compulsory sickness insurance has gained in strength and vigor as the years have passed.

In 1932 the Committee on the Costs of Medical Care offered its proposals for change in the nature of the practice of medicine. These too were officially opposed by the medical profession, which at that time also opposed voluntary sickness insurance as well as voluntary hospitalization insurance. Perhaps a word is necessary now to indicate the reason for that attitude. The medical profession is scientifically trained. Before any new method of treatment is accepted, the value must be demonstrated and the safety of the method must be assured. Medicine as a profession demands equally that social experiments in the field of medical practice prove their value and their safety before they are acceptable and before they are extended to the public. People in general must depend on the physician to protect them from harm in the use of new and untried remedies. People must depend on the medical profession equally to protect them against social experiments in the administration of medical service which may do more harm than good. Until actuarial data became available sufficient to warrant the calculation of risk, it would have been folly to propose hospitalization insurance for general adoption throughout the United States. The history of innumerable hospitalization plans has proved the necessity for careful trial on a small scale of any plan before it is accepted for general adoption. Some of the hospitalization plans which are today among the leaders in membership and in efficient service passed through periods of trial in which their fate hung in the balance and in which the prognosis was grave. In the practice of hospitalization insurance questions still arise as to relationships between the hospitals and the medical profession. The methods of remuneration of physicians, the responsibility of the hospital to the patient, the responsibility of the physician to the patient and the relationship of some technical practices to professional practice still present unsolved problems. Every one of these demands careful consideration not only for the good of the individual patient but also for the ultimate effect of the decision on the advancement of medical science.

The problems in the field of voluntary sickness insurance, either by private insurance companies or by nonprofit voluntary mutual insurance companies, are even more numerous and concern more seriously the advancement of medical science, the quality of medical service and the relationship between doctor and patient. Nevertheless many of these problems are now being solved by the standard technic of trial and error, with correction of error when it is determined. This is the scientific method first propounded by Hippocrates and recognized by philosophers and statesmen as one of the greatest contributions of all time to human civilization.

The American Medical Association is frequently accused by the revolutionists in the field of medical care of fighting a rear guard action against the proponents of changes in the nature of medical practice. The history of medicine contains enough examples of the need of scientific study of new technics before general acceptance to warrant the delaying tactics that have been a feature of the policies adopted by the House of Delegates since 1932. These policies will yield a system of medical care for the American people consistent with democratic government and capable of providing under insurance principles a high quality of medical service. A too ready acceptance of half-baked financially unsound proposals in the field of prepayment plans for medical care would have yielded, as it has already in some other countries, notably New Zealand, only a series of disastrous failures. These would have led inevitably and soon to the taking over by the government of the complete sickness insurance program. This has been the history of sickness insurance up to this time. There is no reason to believe that a repetition of the poorly considered programs that developed in other countries would have led in this country to anything other than a governmentally owned system of medical practice and a deterioration in quality of service.

The present problem of public relations in American medicine in this country is to convince the American people that a voluntary sickness insurance system developed with features peculiar to the American way of life is better for the American people than a federally controlled compulsory sickness insurance system. In the attempt to educate the people regarding this problem and to convince them of the soundness of the point of view of the medical profession, many public relations technics have been employed. These have included, on the part of the American Medical Association, the presentation of data developed by its own Bureau of Medical Economics, policies adopted by its House of Delegates and widely circulated through the press, public debates in which many officials of the American Medical Association have participated, and the use of the press, the radio, periodicals, public addresses, motion pictures and every other medium of public expression. Many of the state medical associations have carried on independent efforts which have been highly efficient in their performance. Some groups of states have participated in such activities. A considerable number of states, however, have failed to be especially active in this regard.

By the American system of government, the ultimate decision must rest with the Congress of the United States. In the history of the American Medical Association now being prepared for the one hundredth anniversary in 1947 some of the record of the activities related to the Congress will be made available. Intelligent men learn from experinece. Previous experience has guided what is now being done. Congressmen are more and better convinced by hearing the views of their own constituents than by printed matter or even by personal interviews from representatives of national agencies. The American Medical Association and other national agencies have made certain that our representatives in the Senate and in the House are fully informed concerning the fundamental data related to medical service and the professional aspects of medical care. They look to the medical profession for authoritative opinions on the medical service aspects of sickness care. They do not look to the medical profession for either data, opinion or argument concerning the costs of such a program, the methods of compensation or the rights of the government in relationship to the provision of funds. Incidentally, just how many measures inimical to the medical profession or the advancement of medical science have ever passed the Congress? For more than thirty years a compulsory sickness insurance bill has been introduced at every Congressional session. Thus far not one has ever reached the likelihood of favorable consideration.

The headquarters of the American Medical Association has established relationships with most of the leading periodicals of the United States, with the press and the press associations, with the radio chains and with every other medium of public expression sufficient to make certain that all of these are available for extending to the people the point of view of American medicine. In these efforts many of the state medical associations and a good many county medical societies participated fully. Certainly the periodicals of the state medical associations have been liberal in the space devoted to such discussions and have in many instances efficiently extended their discussions to the general press in their own states. The American Medical Association has not purchased either radio time or advertising space for the expression of its point of view. The Board of Trustees apparently has not felt that such an action was consistent with the nature of the Association or with the policies advocated by the House of Delegates. Nevertheless this aspect of extension of medical opinion to the public has not been neglected. Recently other agencies have entered the field to meet this need in behalf of American medicine and to carry on a public relations effort sufficient in scope and influence to meet modern concepts.

ORGANIZATIONS ACTIVE IN MEDICAL PUBLIC RELATIONS

The National Physicians Committee has supported the policies of the House of Delegates and has, by a variety of technics, extended its point of view to the American people.

Among the membership of the American Medical Association is a small percentage of physicians who do not agree with the policies of the House of Delegates regarding social aspects of the practice of medicine. Such groups as the Physicians Forum, the Committee of Physicians and the American Association of Physicians and Surgeons from time to time express themselves on such subjects. They compete through press releases or radio talks and in various other ways for public support with the official agencies of American medicine. Naturally their views receive wide publicity in the part of the press favorable to such views.

The Physicians Forum includes in its membership something under 2,000 names, with perhaps 50 active participants in its work. This is purely an estimate, although it is based on communications which have been received from Dr. Ernst Boas, who spearheads this effort in favor of socialized medicine. The Committee of Physicians once included some 400 names and it may now include something under 1,000. Its active body includes not more than 15 and probably 2, namely John Peters and Allen Butler, who do 99 per cent of its work and make its opinions. The American Association of Physicians and Surgeons has, according to fairly well substantiated rumor, received $10 from each of 6,000 physicians who have subscribed to its principles. Just what it has accomplished other than to state its objectives and to get them out in the press is not clearly apparent. This group, however, proposes that the physicians of the United States strike against the sick public in case the government of the United States should establish compulsory sickness insurance. Such an action would be contrary to all of the tradition of medical science covering the responsibility of the physician to the sick. No official body of the American Medical Association has ever ventured even the thought that physicians would neglect to minister to the sick as evidence of their opposition to the law of the nation.

The National Physicians Committee has been most effective of all the organizations striving to mold public and legislative opinion in the field of medical care. Its efforts have been repeatedly endorsed by the House of Delegates of the American Medical Association. This agency has used syndicated newspaper publicity and editorial opinion, newspaper advertising, pamphlets, radio, direct-by-mail solicitation, education and every other technic of public relations in its work. Currently some thousands of representatives of medical industries are encouraging every one whom they meet or interview to communicate directly with the Congress expressing opposition to the compulsory sickness insurance feature of the National Health Program and to the Wagner-Murray-Dingell bill. In many communities joint action by physicians and medical industries has been stimulated to the insertion of advertising in the press, the use of local radio and other public relations work against state medicine. From twelve to fifteen million pamphlets were circulated in the attack on the previous Wagner-Murray-Dingell bill, which passed into innocuous desuetude, and many millions of pamphlets are now being circulated through drug stores, supply houses, hospitals and other medical agencies. Through this group also physicians are being educated as to the details of the proposed legislation, and they will be encouraged to make direct contact with legislators from their own states to make certain that the legislators are fully informed. The budget approximates several hundred thousand dollars and the funds are, as nearly as I can determine, efficiently and economically used. The medical profession owes a great debt of gratitude to the distinguished physicians who serve as the directing board of the National Physicians Committee and to the staff who carry out so effectively the policies that this board establishes.

Recently the Board of Trustees of the American Medical Association has employed competent public relations counsel to survey the activities of the American Medical Association in the field of public relations. Such counsel will evaluate the work, determine which activities are yielding effective results and which perhaps are failing, determine whether other activities should be undertaken and recommend for the American Medical Association a complete program in public relations. This action by the Board of Trustees is in accord with a modern trend toward recognition of the part that public relations plays in the conduct of any industry or public agency. The public relations activities of the American Medical Association are in process of evolution. The various councils, bureaus and committees of the Association were initiated in response to recognition by the House of Delegates of certain needs, and they have grown and evolved to fill the need.

Public relations is still a new profession. Many of its technics are still highly experimental if not controversial. One authority urges participation in public debates as a stimulant of interest; another asserts that public debate tends only to confuse the people and never convinces any one. On social proposals an organization like the American Medical Association may come into direct competition with the government for public favor. On some proposals it may enhance the government's efforts. When the President of the United States alines himself with a social point of view that is opposed by a private agency, that point of view achieves additional weight. Nevertheless in the past other presidents have thrown their weight in behalf of social or economic measures which were opposed both by individual agencies and eventually by the Congress and which, obviously, never became the law of the nation. The present efforts on the part of the federal government to impose compulsory sickness insurance on the American people and on the medical profession is a political procedure made without adequate study and without regard to scientific factors fundamental to the health of the American people. Thomas L. Cotton, a public relations expert in the field of social research, has said "Few American business men welcome increased regulation of their operations by government. Freedom of initiative is circumscribed and the cost of operations usually increased. The opposition of business men to such threatening proposals has not always been well timed or wisely conceived. Oftentimes these regulatory measures for alleged social gains originate in some social agency or civic betterment group. Usually there is a long period of incubation before these ideas are hatched into legislation. During that formative period business men pay little attention to the matter. Of a sudden, legislation is introduced which is so idealistic that business could not live under it and the public relations man finds himself facing a serious problem." Mr. Cotton was concerned with the problem of small loans; yet that paragraph might just as well have been written about socialized medicine.

Today American medicine is in a strong position for the maintenance of a high quality of medical service, for progress against disease, for the development of an American system of medical care which will be free from governmental domination. Many important legislators, probably a majority of legislators, feel that the medical profession must be given its opportunity to meet the challenge before government intervenes. The conference on public relations of the Council on Medical Service concluded: "Antagonism of some elements of the public toward medical organizations seems to rest on the basis that opponents of organized medicine offer a specific program which promises complete medical care on what seems to be a relatively small financial outlay, whereas the medical profession has not yet come forward with a specific program for the extension of medical service on a nationwide basis with a system of payment easily available and sufficiently attractive to insure early enrolment of a large proportion of the public. The task of public relations would be rendered much easier if those concerned could be put in possession of a constructive program which they could promote to the public rather than in a position of continuous defense against programs coming from other sources."

The House of Delegates adopted a resolution recommending that the Board of Trustees and the Council on Medical Service and Public Relations proceed as promptly as possible with the development of a specific national health program. That program is near to completion and should soon be announced to the medical profession and to the people. When available it will become a powerful weapon in the battle against government dominated medicine. The House of Delegates recommended also that the Board of Trustees and the Council on Medical Service emphasize a nationwide organization of locally administered prepayment medical plans sponsored by medical societies. This move toward the development of a standard prepayment plan for medical bills, with an insurance policy recognized anywhere in the United States and bearing the mark of acceptance by the American Medical Association, will be another valuable tool in meeting the needs of the American people. We are developing a system of medical care consistent with the American democracy. Such activity in behalf of the people is the best public relations that could be evolved. Let us use every possible vehicle of dissemination of information to tell the people what we are doing.

DISCUSSION

Mr. John Hunton, Executive Secretary of the California Medical Society: Public relations, as Dr. Fishbein has pointed out, has come into being in the twentieth century and just now is becoming recognized by the medical profession as a problem to be met by the profession. A few years ago at one of our meetings I happened to be in a conversation with two gynecologists, and one of them was talking about the fees that he charged. The other said "Who sets your fees?"

"I set my own fee."

"What do you mean, you set your own fee?"

"Why, I tell every patient what my fee is going to be, and that is what it is."

"Wait a minute! You don't set your own fee. A woman comes to you and you examine her and you say she should have a certain piece of surgery performed. She says 'How much will it cost me?' You say it will be $200, and she replies 'I want to talk it over with my husband.' The next week you see her in a hospital and somebody else is operating on her, and he doesn't charge the high fee that you do. Or she comes in and you say 'My fee is $200.' You operate on her and send her a bill for $200, and she pays you $100. Who sets your fee? The public sets your fee—your patients set your fee. You are not doing it yourself at all."

Not only does the public set the fees, but the public actually controls conditions under which medicine must be practiced. We are recognizing that gradually in some of the states; it has been recognized a little earlier in some other states. There is a realization coming to all of us that the public must be the controlling factor, the factor whose voice is going to be heard and to which we must listen. We see it in our own state; we see it in the national Congress. These proposals for compulsory sickness insurance are not new. We have had them in California since 1918. We have been fighting them violently. We had a terrific battle last year. They represent the voice of one segment of the public, the left wing group: a group which must be recognized and which actually represents a demand of a general character by the public for more readily available medical care on a budget basis at a price which the public can afford to pay. If the medical profession itself cannot provide that type of service, the government is going to do it for the people. We all know the way we want it. We want to do it ourselves and we don't want to do it under government domination.

In any public relations program a public relations expert starts his educational work at what he calls the point of contact. In the bank he will start with the bank tellers, the people who stand behind the wickets and meet the public. To the people coming into the bank the man behind the wicket is the bank. He is the person the depositor talks to; he represents the point of view and the policy of the institution. Unfortunately, in the medical profession, as large and as widespread as it is, and not representing a group of people in the employ of one employer, and therefore not amenable to a company educational program, the attack must be different. The approach has to be of a different nature. However, we still must do our educational work at the point of contact, which is the individual physician who sees his patients. We all know that one physician making a poor impression on a patient can offset the good work that a hundred physicians can do who really go out of their way to represent the medical profession properly and in a true light to the public.

We were recently approached by a group of commercial insurance companies who had a complaint that about 5 per cent of the doctors performing surgery under the indemnification policy as written by that company were making what the insurance company said were gross overcharges. The charge for the surgery was terrifically out of line with the indemnifications outlined by the policy. Ninety-five per cent of the doctors were complying more or less, but their fees were more or less in line with what was allowed under the policies. Five per cent were overcharging to a point where their overcharges were reflected back in the attitude of the individual patients, and they in turn went back to their own groups and their own companies, and the insurance companies found themselves losing business on account of what the small minority of 5 per cent of the doctors were doing. They were doing more harm than the 95 per cent were doing good.

If you are going to start at the point of contact and educate the individual physician in public relations, it is our idea in California that we should start very early; we should start in the medical schools. At one time or other we have had several rather haphazard courses in medical economics in the medical schools; they have not been well organized. They have been disjointed and inconsistent. We will find one school putting on a pretty good course one year, and the next year they will say "It's too much trouble." We have found that when a good course is put on, and when it is voluntary, and an optional course, the students eat it up.

We are now planning to present a series of courses of this type in all of our four medical schools. Ted Wiprud has written a couple of books on the subject. I would like to pay tribute to him and to suggest that it be carefully considered in your own states. We are also having a little experiment in one of our large counties, Los Angeles County, which has a membership of about 3,600 physicians. The council of that society has voted that every new applicant for membership must undergo an indoctrination course and take an examination before he is admitted to membership. The idea is not to set up a barrier to keep him out; the idea is not to flunk a man on his examination; the idea is to make sure that every applicant for membership will go through a course of six meetings, which will include ethics, organization, history, malpractice, legislation and prepayment plans, and to let those applicants for membership know through that series of meetings that they have a responsibility jointly with the rest of the members and that they will be expected, as members, to assume their share of the responsibility and to handle themselves properly with the public—to let them know that they should not go off half-cocked on their own, and do something which will injure public opinion instead of improve it.

As Dr. Fishbein has stated, public opinion leads into legislation. We have had a lot of discussion in the last few years on legislation. We have had the Council on Medical Service and Public Relations established, and the Council is moving rapidly toward the fulfilment of the goal that a great many people throughout the country have had for a long time. Our legislators in our state capitals and in Washington reflect nothing but public opinion. They are representatives of the people. Sometimes I think they are misrepresentatives, but at least they are elected by the public, and fundamentally they are presumed to represent public opinion in the type of legislation which they introduce and which they pass or discard.

Our problem in medical public relations is to build our pyramid in the same fashion, to have the head of the pyramid extended into our legislative bodies so that when the matter of legislation comes up medical public opinion will influence the legislators. When legislation of any character comes up which will affect the practice of public medicine or the public health, then the medical profession as an organization will be well enough recognized and respected by the legislators so that they will take our word when it comes to testimony and when it comes to ideas on this, that or the other type of bill.

Most of us have had a lot of experience in our own states. The American Medical Association has had considerable experience in Washington along this line. That must be our ultimate objective, because after all if legislation of an adverse character is to be passed it is going to be a long time before it will be repealed again.

Dr. Fishbein has paid tribute to the job being done by the National Physicians' Committee. I think we have all seen the vast amount of literature that the National Physicians' Committee has put out. We have all seen that it has been highly effective. We all recognize that the National Physicians' Committee came into being because there was a definite need for it.

In my opinion the excellent work of the National Physicians' Committee could be better carried on if the National Physicians' Committee was actually a part of the American Medical Association.

The House of Delegates of the American Medical Association has given the National Physicians' Committee a nice pat on the back several times; however, it is still the National Physicians' Committee. If it could be the public relations department of the American Medical Association and be welded in as part of the Council on Medical Service and Public Relations, in my opinion it would be a much more effective organization. The same technics, the same formulas, the same personnel which have been effective so far could be made just that much more effective and could be utilized and made a definite part of the American Medical Association.

Mr. Edward Stegen, National Physicians' Committee: We owe a debt of gratitude to Dr. Fishbein for his extremely interesting and informative paper. A sound public relations program implies a careful internal and external analysis, an analysis that includes in its scope the people, the product or service, the need for the product of service, the public acceptance of the product or service, an analysis on the external side of what means and what avenues and what technics can be applied intelligently and legitimately to implement public acceptance, public understanding and public approval of the product or service. On the basis of an adequate analysis of a given problem with which public relations people must deal, planning has been good if the people are competent who are running the program; but frequently the work and the success of a given cycle of the program or effort is limited or liquidated by bad timing. Ivy Lee said that public relations was 50 per cent content and 50 per cent timing. We must think of public relations generally as an evolutionary process; in other words, public attitudes change. There are competitive elements in our society that change public attitude toward any given service or product. In any public relations program we must recognize the cyclic evolutionary aspect of the job.

Another instance of defect in many a good and well planned public relations program is the lack of coordination of effort. In a complicated problem, when you are dealing with many forces and many interests, numerous individual and group expressions, and when you are using all of the regularly accepted mediums to tell your story and to gain public acceptance, coordination is important; it must be a significant phase of planning and of operation. Effort must be made toward a uniformity of opinion and uniformity of expression of the people or the group that is being served. In my limited experience I once had the privilege of working with Mr. Cotton in an attempt to convince the people of this country that so-called remedial lending under the Uniform Small Loans Acts of the various states was a socially acceptable and useful device. The program was moving along satisfactorily until we discovered that all of the things we were saying and that had group acceptance by the people who were in the industry were being liquidated and placed in a critical position in many communities because of the individual expressions of people in their day-to-day job of doing business of lending money.

I don't suppose you can ever accomplish a total similarity of expression or total similarity of opinion. I do not think we are built that way. It is a problem that the public relations counsels and the public relations people must deal with, and an effort must be made constantly toward a uniformity of opinion in the group being served, to crystallize that uniformity of opinion into a uniformity of expression. The individual doctor enjoys such a distinct place in his community, and such a reverence from the people whom he serves, that all the contumely which from time to time has been heaped on the profession or the group by our critics has never actually come down to being a criticism of the individual doctor. The doctor is still an important and respected individual and a servant of his community. I believe that fact is most dramatically illustrated in some of the attacks which have come out of government agencies, where almost invariably and to a pattern the criticism begins "The American doctor is a great servant of his patients, and he is a well trained and effective physician." and then comes the hooker, "but—", and then the criticism of the group.

Dr. Fishbein brought clearly to point the fact that the job of public relations for medicine must begin with that individual who has that high percentage of public acceptance, the individual physician, that it must grow from there into the same kind of acceptance to the group, to the profession as a whole, or to any of the segmental organizations. That is really the problem which medicine faces today—to gain for the profession, for the organizations that represent the profession, the same kind of understanding on the part of the public and the same kind of acceptance which the public has so generously given to the individual doctor.

Mr. Hunton's comments on the relationship of the National Physicians' Committee and the American Medical Association were interesting. Although not identically so, but for pretty much the same reason that the California Medical Association retains public relations counsel and uses an organized professional group to handle these aspects of its problem of public relations, I think organized medicine has found it desirable and eminently useful to have an organization such as the National Physicians' Committee to act pretty much in that professional area and to do certain segments of the job which in every instance are not readily adaptable to the line organization.

Since I have the task of dealing with medical public relations, this observation has struck me as significant: Medicine as such, through its many, many organizations, state and county societies, the American Medical Association, has employed the regular mediums of public expression better and more intelligently than any other organized group I know of, and we can use that great and good acceptance of our expressions, which has grown out of it, as the most effective device to deal with our legislative problem. The legislator, as the author pointed out, is both a member of the public, a government servant if he belongs to your party, and if he isn't he is a bureaucrat, and he believes he can give the most intelligent expression of public opinion because he has been chosen on an elective basis to represent the public. To deal with him we have to lay a groundwork and use all of the mediums of public and mass education. In dealing with the legislator we can show a definite connection between what the people think and what the people want, and what he thinks the people want. I am sure I express the consensus of our opinions that Dr. Fishbein did a marvelous job in dealing with this topic.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Veterans Administration

A bill introduced by Senator Langer, North Dakota, S. 1817, proposes to provide for hospitalization and treatment of veterans in nongovernmental hospitals. It provides that, when any person entitled to medical care, treatment and hospitalization under the laws administered by the Veterans Administration cannot be treated or hospitalized at a government facility within a reasonable distance from the place of his residence, the Administrator of Veterans' Affairs will be authorized to provide for such medical care and treatment by private physicians and for hospitalization in a nongovernmental hospital. The administrator would be authorized to enter into agreements with private physicians and nongovernmental hospitals to provide the necessary medical care, treatment and hospitalization at specified rates determined by him to be fair and reasonable. H. R. 5383, introduced by Representative Barry, New York, proposes an appropriation of $1,500,000 to be expended by the Administrator of Veterans' Affairs in building a new hospital and diagnostic center in the city and state of New York.

Medical Care for the Needy

Senator Langer, North Dakota, proposes by S. 1838 to amend and extend the provisions of title I, title IV and title X of the Social Security Act to provide, among other things, hospital, medical and health services to needy aged persons, to dependent children and to the blind.

Hill-Burton Hospital Construction Bill

Hearings before a subcommittee of the House Committee on Interstate and Foreign Commerce on bills pending before the committee proposing a hospital building program originally scheduled to begin on February 25 have been postponed until March 7.

Miscellaneous

H. R. 5465, introduced by Representative Savage, Washington, proposes to aid the states in establishing and maintaining a scholarship and fellowship program in the colleges and universities. For the fiscal year 1946-1947 an appropriation of $35,000,000 will be authorized, for the fiscal year 1947-1948, $50,000,000, for the fiscal year 1948-1949, $65,000,000, and for each fiscal year thereafter, $80,000,000. H. R. 5353, introduced by Representative Robinson, Utah, would authorize the Secretary of War to convey certain lands situated within the Fort Douglas Military Reservation to the Shriners' Hospitals for Crippled Children.

STATE LEGISLATION

California

Bill Introduced.—S. J. R. 7-X proposes that the President of the United States and the Veterans Administration be memorialized to enter immediately into contracts with the Army and Navy to take over a sufficient number of hospitals, adequately staffed, to furnish hospital facilities for veterans.

Georgia

Bills Enacted.—H. R. 169 became Governor's Act No. 77 of the Acts of 1945 on Jan. 31, 1946. It provides for the submission to the voters of an amendment to the state constitution creating a State Board of Public Welfare. H. 732 became Governor's Act No. 623 of the Laws of 1945 on Feb. 1, 1946. It provides for the creation of a hospital advisory committee and will require all persons operating or in charge of any hospital, sanatorium, infirmary, maternity home, nursing home or similar institution to be licensed by the State Board of Health.

Kentucky

Bills Introduced.—H. 225 proposes that no physician, surgeon or registered nurse shall be denied the right to attend and treat any patient, by whom such physician, surgeon or registered nurse has been employed, in any hospital or institution in the state on account of his race. The proposal would further prohibit the denial to any person, on account of race, of the right to receive postgraduate or in-service training in medicine, surgery or nursing in any hospital or institution in the state.

Massachusetts

Bills Introduced.—H. 801 proposes the creation of a state board of registration of opticians and defines an optician as "a person engaged in the filling, compounding or reproducing of prescriptions of physicians or optometrists for ophthalmic lenses, eyeglasses or other optical appliances intended for the correction or treatment of defective vision or ocular anomalies of the human eye, and the mounting and fitting of the same to frames or supporting materials, and the adapting of such lenses, eyeglasses and appliances to the use of the wearer." Physicians and optometrists are specifically exempted from the provisions of this bill. H. 1417 proposes to authorize the commissioner of mental health to provide hospital facilities and hospital treatment for the care of mentally ill children. H. 1468, to amend the law relating to the restraint of patients in mental hospitals, proposes that "restraints" shall not include chemical or mechanical restraint in cases of contagious disease, during the administration of anesthesia, or following an operation or accident which has caused serious bodily injury, or during the administration of shock therapy, insulin treatment or any other recognized specific therapy.

Michigan

Bill Introduced.—S. 9-X proposes the appropriation of $750,000 to the board of regents of the University of Michigan for the construction and equipment of a new maternity hospital and a new children's unit in connection with the University of Michigan hospital.

Bill Passed.—H. 13-X passed the house February 11. It proposes the approval of a postwar emergency hospital program for the construction and equipment of a number of hospitals for mentally affected persons.

Mississippi

Bills Introduced.—H. 430 proposes the creation of a Mississippi Commission on Hospital Care with the duties, among others, of assisting in developing, promoting and encouraging a voluntary prepayment plan of hospitalization, or hospitalization insurance. H. 431 proposes the creation of a state medical education board to receive and pass upon applications for loans or scholarships made by students who are residents of the state and who desire to become physicians. The purpose of such loans would be to enable the applicants to obtain a standard four year medical education which will qualify them to become licensed, practicing physicians and surgeons within the state. H. 432 proposes an appropriation to the State Medical Education Board to provide loans or scholarships for citizens of the state who desire a medical education which would qualify them to become licensed and practicing physicians and surgeons within the state. S. 155, to amend the law relating to the licensing of nurses, proposes certain standards which a hospital must maintain in order to be recognized and approved as a training school for nurses. S. 181, to amend the law relating to the issuance of marriage licenses, proposes that both parties applying for a license to marry shall submit to a thorough medical examination by an active licensed physician in Mississippi, by a physician licensed to practice in any or all of the other states of the Union or the District of Columbia, by a commissioned medical officer on active duty in the armed forces of the United States, or by a medical officer of the United States Public Health Service, provided that said medical examination may be made free of charge by any full time county health officer licensed to practice medicine in Mississippi if the person examined is unable to pay for same. Medical examinations would include a standard serologic test or tests for syphilis.

Bills Passed.—H. 388 passed the house February 13. It proposes an appropriation to the State Board of Health for the conducting of a program of eradication and control of syphilis and other venereal diseases. S. 90 passed the senate February 11. It proposes to authorize the State Board of Health to maintain injunctive procedures to enjoin any person from the practice of any profession required to be licensed by said board when such person is practicing without first having obtained a license.

Missouri

Bill Passed.—H. 831 passed the house February 5. To amend the law relating to the appointment of deputy state commissioners of health, it proposes to authorize the county courts of any county to appoint as a deputy state commissioner of health a duly licensed qualified physician. The existing law requires only the appointment of a reputable physician.

New Jersey

Bills Introduced.—A. 45, to amend the medical practice act, proposes to admit to examination by the board of medical examiners persons otherwise qualified who instead of being licensed as a physician in some other state had served as an intern for at least two years in a hospital approved by the State Board of Medical Examiners. A. 47 proposes the establishment in the executive branch of the state government of a State Department of Health in which there shall be a Public Health Council authorized, among other things, to promulgate regulations which would constitute the State Sanitary Code. A. 66, to amend the law relating to divorce, proposes to authorize the granting of a divorce when either of the parties to the marriage has become incurably insane, provided that the person has been confined in an insane asylum for at least five years prior to the commencement of the action for divorce and provided further that it shall appear to the satisfaction of the court that the insanity is incurable, such satisfaction being based on the testimony of at least two reputable physicians. A. 90, to amend the workmen's compensation law, proposes, among other things, to authorize an injured employee to select to treat him any duly licensed physician, who must be recompensed by the employer. S. 75 proposes the enactment of an unemployment and cash sickness compensation law. S. 95, to amend the medical practice act, proposes that any applicant for a license to practice medicine and surgery who has been examined and licensed by the examining and licensing board of another state or by the National Board of Medical Examiners may be licensed without further examination provided he furnishes proof that for a period of at least one year within the period commencing Dec. 7, 1941 and ending Aug. 14, 1945 he has, while a commissioned officer of the medical corps of either the United States Army, the Army of the United States, the United States Navy, the United States Naval Reserve or the United States Coast Guard practiced medicine and surgery in the performance of his duties.

Bill Passed.—A. 69 passed the assembly February 11. It proposes to authorize the establishment and maintenance of blood banks to collect, process, store and distribute human blood and the various human blood derivatives, including special therapeutic and diagnostic serums, which are deemed of value in the treatment of sick and injured persons, and the prevention of certain diseases.

New York

Bills Introduced.—A. 896 and S. 830, to amend the law relating to the practice of optometry, propose that applicants must be citizens of the United States or must have declared an intention of becoming such. A. 898 and S. 827, to amend the law relating to the practice of podiatry, propose that applicants must be citizens of the United States or must have declared an intention of becoming such. A. 899 and S. 829, to amend the law relating to the practice of dental hygiene, propose that applicants must be citizens of the United States or must have declared an intention of becoming such. A. 983 and S. 821, to amend the penal law in relation to the right to dissect the dead body of a human being, propose that the husband, wife or next of kin of the deceased, when authorizing a dissection, shall do so by written instrument which shall specify the purpose and extent of the dissection so authorized. A. 1167, to amend the law in relation to hypnotic and somnifacient drugs, proposes to prohibit a pharmacist or druggist from furnishing a copy of the prescription to the patient. A. 1204, to amend the law relating to privileged communications, proposes to authorize a waiver of the privilege to be made in any litigation where the individual interests of the personal representative of a deceased person are deemed by the trial judge to be adverse to the interests of the estate. S. 755 proposes the enactment of a disability benefit law. "Disability" would be defined as "the incapacity on any day of a person to perform any employment because of physical or mental conditions." S. 801, to amend the unemployment insurance law, proposes to remove the exemption of charitable, scientific, literary or educational institutions therefrom. S. 802, to amend the unemployment compensation law, proposes that the illness or disability causing unemployment shall be certified under oath by a physician or surgeon duly licensed to practice in the state of New York or in any other state, territory or possession of the United States. S. 975, to amend the workmen's compensation law, proposes to authorize an injured claimant to have free choice of a duly authorized hospital for treatment of his injuries.

Bill Passed.—S. 556 passed the senate February 11. To amend the law in relation to hospital liens, it proposes that such liens shall not include personal services rendered by a physician or surgeon and that the rates charged by the hospital shall be deemed equivalent to the scheduled rates currently approved by the industrial commissioner and the superintendent of insurance for cases under the workmen's compensation law.

Virginia

Bills Introduced.—S. 149 proposes the creation of hospital authorities to engage in hospital construction, maintenance and operation. S. 166, to amend the law relating to hypnotic drugs, proposes that the words "dangerous drugs" shall include, in addition to preparations already so included, "Hormones, or hormone drug preparations, whether of natural origin, prepared from the so-called glands of internal secretion or endocrine glands, or whether synthetically produced, by whatsoever trade name or designation, or any compound or mixture thereof; except preparations intended for external use containing hormones in combination with other ingredients unfit for internal administration." No person would be able to sell or give away any such drug except on the prescription of a doctor of medicine, doctor of dental surgery or doctor of veterinary surgery, lawfully practicing his profession, and prescriptions for hormones could, on written authorizations on the face of the prescription by the prescriber, be refilled a definite number of times as indicated.

Washington Letter

(From a Special Correspondent)

Feb. 18, 1946.

Controversial Legislation Before Congress

Among controversial items of legislation slated for consideration by Congress during the coming week are extension of the Office of Price Administration past June 30, universal military training and the federal school lunch program. The House Military Affairs Committee today begins the final week of hearings on universal military training legislation. There is considerable opposition to the bill to make permanent the federal school lunch program, being considered by the House. Opponents consider it the first definite step toward federal control of public schools. Hearings will continue on efforts of President Truman to have Edwin Pauley nominated as Undersecretary of the Navy, which has already resulted in resignation of Interior Secretary Ickes.

Use of Hospital Ships for Veterans Proposed

Until the hospital program of the Veterans Administration provides more beds, floating hospital ships are the answer to the acute shortage of facilities for veterans, according to Senator Mead, Democrat of New York. He said that both the Army and the Navy have excess hospital ships which could be used. Some ships are now being used to transport war brides to this country. War Secretary Patterson authorized General Omar N Bradley to announce that army engineers will take over the bulk of construction on the agency's $448,000,000 "skyscraper" hospital building program. Bradley described it as "the most gigantic hospital building program in the history of the world" and estimated that with the help of the engineers the hospitals could be completed in eighteen months to two years. Veterans are to have 183 permanent hospitals with a capacity of 151,500 beds. General Bradley also proposes a nationwide system of home town medical and hospital care for disabilities traceable to military service.

Red Cross Sees Busy Peacetime Role

The Red Cross estimates that its services to discharged veterans of the war will not reach their peak until 1975, basing this on the fact that veterans of 1918 are still asking help from the Red Cross in larger numbers than ever before. The organization reports that since Pearl Harbor 500,000 victims of domestic disasters have been given food, clothing, shelter and medical care. A total of $7,200,000 was spent meeting their needs. Through Red Cross educational programs 1,400,000 certificates were issued to students in home nursing, 700,000 in nutrition and 1,200,000 in water safety.

Lack of Progress in Preventing Deafness

Failure of the medical profession to make progress in preventing deafness was deplored by Vice Admiral Ross T. McIntire, Surgeon General of the Navy, addressing the twenty-fifth anniversary meeting of the Washington Society of the Hard of Hearing. Admiral McIntire said that virtually no headway had been made in this field in fifty years except in deafness related to disease. He reported that the Navy is now engaged in research at the Philadelphia Naval Hospital, where hard of hearing patients among naval and Marine Corps personnel are treated.

Army Cuts Physical Standards to Obtain 75,000 Men

The U. S. Army has lowered its physical standards so that 75,000 men once rejected can be called up for manpower needs, the War Department announces. The men will be obtained from the pool of 1,250,000 nonfathers from 18 through 25 years of age. These are classified mostly in 4-F but also include some classes in 2-A-L, 2-A-F, 2-C-L and 2-C-F.

Refutation of Charges of Cruelty in Animal Experimentation

Although one segment of the local press is agitating for antivivisection legislation in the District of Columbia, another newspaper has produced evidence that a dog on an operating table for experimental purposes received scientific pain prevention equal to that administered to a human being. The Army is quoted as follows: "No research capable of inflicting pain or suffering may be undertaken unless the animals are suitably anesthetized, or other steps have been taken to prevent suffering." Friends of Medical Research is quoted: "There is always anesthesia in an operation on a living creature. . . . Doctors study dogs to learn about human beings. . . . The law now safeguards all animals used in research. A laboratory dog is prepared for an operation with the care accorded a human being. It is also pointed out that army research is conducted in connection with established medical centers whose rules and regulations govern the investigators.

"Quick" Treatments Blamed for Increase in Venereal Disease

Dr. William P. Herbst, president of the Social Hygiene Society, stated here that quick, comparatively painless treatments for venereal disease have removed the "fear deterrent" and caused a "noticeable increase in reinfection." Dr. Ross Taggart, director of the Venereal Disease Bureau, also stated that since quick cures had been used an increasing number of patients had been returning for treatment as often as six times a year.

Extension of Planned Parenthood Urged

An international policy to balance population growths of the world was urged by D. Kenneth Rose, executive director of the Planned Parenthood Association of America in a luncheon meeting here. He advocated continued efforts to spread the planned parenthood doctrine in the United States, where he said increasing abortions currently are responsible for two thirds of maternity deaths and where two thirds of the children are born in the lowest economic group.

Surplus Medical Supplies for Veterans' Hospitals

The U. S. Army will retain enough surplus medical supplies and equipment for 100,000 veterans' hospital beds, it is reported here. A stockpile valued at $30 million includes about fifty critical materials. The Veterans Administration will get the materials for five years but will be allowed only twelve months' supply at a time to permit release of some for civilian medical uses.

Coming Medical Meetings

Aero Medical Association, Chicago, April 7-9. Dr. David S. Brachman, 1016 Dime Building, Detroit 26, Secretary.

Alabama, Medical Association of the State of, Birmingham, April 16-18. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association of Anatomists, Cleveland, April 4-6. Dr. Eliot R. Clark, University of Pennsylvania School of Medicine, Philadelphia 4, Secretary.

American Association of Pathologists and Bacteriologists, Chicago, March 8-9. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Physiological Society, Atlantic City, March 11-15. Dr. Wallace O Fenn, 260 Crittenden Blvd., Rochester 7, New York, Secretary.

American Society for Experimental Pathology, Atlantic City, March 11-15. Dr. Harry P. Smith, 630 W. 168th St, New York 32, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Atlantic City, March 11-15. Dr Raymond N. Bieter, University of Minnesota Medical School, Minneapolis, Secretary.

American Surgical Association, Hot Springs, Va, April 2-4. Dr. Warfield M Firor, Johns Hopkins Hospital, Baltimore 5, Secretary.

Arkansas Medical Society, Little Rock, April 14-15. Dr. W. R. Brooksher, 602 Garrison Ave, Fort Smith, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, March 5-8. Dr Warren W. Furey, 30 North Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 18-21. Dr. John G. Young, 1719 Pacific Avenue, Dallas 1, Director of Clinics.

Federation of American Societies for Experimental Biology, Atlantic City, March 11-15. Dr D. R. Hooker, 19 West Chase Street, Baltimore 1, Secretary.

Iowa State Medical Society, Des Moines, April 17-19. Dr. John C. Parsons, 406 Sixth Ave., Des Moines 9, Secretary.

Medical Library Association New Haven, Conn, March 25-27. Miss Frida Pliefke, 2000 Medical Arts Bldg, Minneapolis 2, Secretary.

Missouri State Medical Association, St. Louis, March 24-26. Dr. Ralph L Thompson, 634 N. Grand Blvd, St Louis 3, Secretary.

New Orleans Graduate Medical Assembly, New Orleans, April 1-4. Dr. Joseph S. D'Antoni, 1430 Tulane Ave, New Orleans 13, Secretary.

Postgraduate Institute of the Philadelphia County Medical Society, Philadelphia, April 9-12. Dr. George P. Muller, 301 S. 21st St, Philadelphia, Director.

Southeastern Surgical Congress, Memphis, Tenn, March 11-13. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S E, Atlanta 3, Georgia, Secretary.

Tennessee State Medical Association, Knoxville, April 9-11. Dr. W. M. Hardy, 706 Church Street, Nashville, Secretary.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

New Bureau of Hospital Inspections.—Dr. Julius B. Askew, on assignment to the California Department of Public Health by the U. S. Public Health Service, has been appointed chief of a new bureau of hospital inspections.

Personal.—Dr. Donovan O. Kraabel, formerly medical director at the Santa Rosa army air base, has been appointed medical director of the Sonoma County Hospital.——Dr. Allen E. Stamler has been appointed health officer of Corcoran in Kings County, succeeding Dr. Ernest C. Foster.——Dr. Rudolph B. Toller, Benedict, has been appointed superintendent of the Stockton State Hospital, succeeding Dr. Margaret H. Smyth, and Dr. Melvin J. Rowe superintendent of the Norwalk State Hospital, succeeding Dr. Edwin Wayte. The changes will take effect March 1, after which both Dr. Smyth and Dr. Wayte will be retired.

Changes in State Health Department Staff.—Dr. Malcolm H. Merrill, San Francisco, has been appointed deputy director of the California Department of Public Health, continuing as chief of the division of laboratories, a position he held since 1941. Dr. Merrill joined the department in 1937 as chief of the then newly formed bureau of venereal diseases. The position of chief of the division of medical services is now occupied by Dr. Robert Dyar, Stockton, recently released from the Army Air Force. Prior to his entering service in April 1942 Dr. Dyar directed the joint syphilis epidemiologic study in San Joaquin Local Health District, which was sponsored by the international health division of the Rockefeller Foundation, the health district and the state department of public health. Dr. Philip K. Gilman, San Anselmo, president of the California Medical Association, has been appointed chief of hospital surveys of the department.

ILLINOIS

Study of Dental Caries.—Fluorine will be added to the drinking water in Evanston in a new study conducted jointly by the Evanston Health Department, the Walter G. Zoller Memorial Dental Clinic, University of Chicago, and the department of public health dentistry of the Illinois State Health Department to study its effect on the incidence of dental caries. The superintendents of the schools have agreed to cooperate in making dental examinations of school children. The study in Evanston is based largely on the 1939 epidemiologic studies of the U. S. Public Health Service of school children of Evanston, Oak Park and Waukegan, communities which use fluorine-free Lake Michigan water; and Aurora, Elmhurst, Joliet and Maywood, which obtain their water from deep wells containing approximately 1 part per million of fluorine. Their findings indicate that those using fluorine-free water experienced about 2 6 times more dental decay than those drinking water containing fluorine. In order to determine the present incidence of tooth decay in Evanston, all school children in the age range of 6 to 8 and 12 to 14 years inclusive will be examined before fluorine in the concentration of 1 part per million is added to the drinking water. Reexaminations will be made at one or two year intervals and the results compared as the study progresses. The study will be continued until at least one group of children who have been exposed to fluorine throughout their entire life—prenatal and postnatal—have reached the age of 14. Each examination is to be made with care in order that as many as possible of the very early carious lesions of the proximal surfaces may be found and recorded. An x-ray examination is to be made at the time of the clinical examination. This is for the purpose of discerning those carious processes which are too small to be recognized by clinical methods. Chemical analyses of the food available in Evanston markets will be made from time to time in order to determine the fluorine content. Very frequent chemical analyses for the determination of the fluorine content of the water obtained in all parts of the city will be made. Samples of deciduous teeth which are shed and permanent teeth which must be extracted will be used to determine the amount of fluorine deposited in the dental tissues. The study as well as the methods employed has been approved by the appropriate committees of the North Suburban Branch of the Chicago Dental Society and the North Suburban Branch of the Chicago Medical Society. It is to be hoped that such a detailed study will give considerable information of value on the control of dental decay by the use of public health methods

Chicago

Clinical Conference.—The Chicago Medical Society will hold its second clinical conference at the Palmer House, March 5-8. Among the speakers will be:

Dr. Stanley Gibson, The Significance of Heart Murmurs in Children
Dr. Albert C. Furstenberg, Ann Arbor, Mich , Conservation of Hearing
Dr. Wingate M. Johnson, Winston Salem, N. C , The Management of Patients with Ulcer.
Dr. Charles C. Lund, Boston, Burns
Dr. Kendall Emerson, New York, Tuberculosis.
Dr Robert L Sanders, Memphis, Tenn , The Management of Obstructive Lesions of the Colon
Dr. Irvine H Page, Cleveland, Hypertension
Dr. Eben J. Carey, [illegible] Muscular Dystrophy.
Dr. Roger I Lee, [illegible]
Dr. Elexious T B[illegible]
Dr Peter C Kron[illegible] Should be Recognized by General Practitioners.
Dr Theodore L Squier, Milwaukee, Hay Fever and Asthma
Dr Joseph H. Chivers, Coordination of the Activities of the Industrial Physician and the Private Physician
Drs Woodruff L Crawford, Nordahl O Gunderson and Edward H. Weld all of Rockford, Ill , Polio Epidemic at Rockford.
Ancel B. Keys, Ph D , Minneapolis, Experimental Studies of Starvation on Men.
Dr Walter C. Popp, Rochester, Minn , X-Ray Therapy of Acute Infections.
Dr Edward Tolstoi, New York, The Management of the Healthy and Sick Diabetic.
Dr. Herman L Kretschmer, Kidney and Ureteral Stones.
Dr Priscilla White, Boston, Diabetes and Pregnancy.
Major W Allen Conroy, M C , Anesthesia
Dr Henry H. Turner, Oklahoma City, Endocrine Problems of Childhood
Dr Charles Mazer, Philadelphia, Endocrine Regulation of Menstruation and Me[illegible]
Dr Jean P. P[illegible] Disorders of Pregnancy
Dr. Ernest P. [illegible] Climacteric—Male and Female
Dr. Owen H. W[illegible] The Surgeon and the Ulcer Problem
Dr Earle B. Mahoney, Rochester, N Y., Shock.
Dr Robert Elman, St. Louis, Preoperative and Postoperative Care
Dr Sidney Farber, Boston, Some Chronic Diarrheal Disorders in Young Children.
Col Thomas T. Mackie, M. C., Washington, D. C , Tropical Diseases
Dr Roy R. Grinker, Indications for Specific Types of Psychiatric Treatment.
Dr. Hobart A. Reimann, Philadelphia, Antibiotics.
Dr. Claude S Beck, Cleveland, Surgery of the Heart.
Dr. Harrison H Shoulders, Nashville, Tenn , The Soul of Medicine
Dr Louis Schwartz, Bethesda, Md , Vocational Dermatoses
Lieut Col James J. Callahan, M. C , Washington, Treatment of Fractures
Dr. George T. Pack, New York, The Extension of Radical Surgery in the Treatment of Cancer.
Dr. William D Stroud, Philadelphia, Coronary Disease
Dr Edward W. Boland, Los Angeles, Rheumatoid Arthritis of the Spine.

A panel on hematology will be presented with Dr. Robert W. Keeton as moderator and the following speakers: Drs Howard L. Alt, Israel Davidsohn, Raphael Isaacs, Louis R. Limarzi and Steven O. Schwartz. A feature of the conference will be the presentation of certificates of appreciation to three "veterans of medicine in Chicago," Dr. Ludvig Hektoen, 82 years of age, emeritus professor of pathology, Rush Medical College; Dr. Isaac Arthur Abt, 78 years of age, emeritus professor of diseases of children, Northwestern University Medical School, and Dr. James B. Herrick, 84 years of age, emeritus professor of medicine, University of Illinois College of Medicine On Thursday evening the principal dinner speaker will be Col Philip Cochran on "Experience in Burma." The program also includes a luncheon each day with round table discussions by speakers from the morning session

KANSAS

Changes in Health Personnel.—Dr. Leon Bauman has been appointed full time health officer of Labette County, succeeding Dr. Oscar Harvey, Parsons, who was transferred by the U. S. Public Health Service to Sioux Falls, S. D. Dr. Donald E. Bux, Manhattan, who was recently released from military service, has been named health officer of Cherokee County. Ferrin B. Moreland, Ph D., Iowa City, has been placed in charge of the department of chemistry, division of public health laboratories, Kansas State Board of Health

Health Education Workshop.—A health education workshop sponsored by the state department of education, the state department of health and Kansas State University will be held at the university, Lawrence, July 8-12. The purpose of this workshop is to provide teachers, parents, supervisors, custodians and students an opportunity for intensive study of school and community health problems affecting the health and cation of the child. Study groups and individual conferences may be planned wherein school, home and health personnel may discuss common problems with the hope that a better understanding of the total health education program may result.

KENTUCKY

Commonwealth Fund Visiting Professorships.—Dr. John W. Moore, dean of the University of Louisville School of Medicine, on February 5 announced a group of commonwealth visiting professorships that have already participated in the current school year:

Capt. David B. Foster, M. C., Battle Creek, Mich., visiting professor of neurology and neurologic surgery.
Dr. Carl J. Wiggers, Cleveland, visiting professor of physiology.
Lieut. Col. Brian Blades, Washington, D. C., visiting professor of surgery.
Dr. Carl C. Speidel, Charlottesville, Va., visiting professor of anatomy.

All visiting professors have given special lectures to the students and staff on subjects chosen from their own studies. Those of them with clinical interests have held special clinics and ward rounds, while the visitors with laboratory interests have given laboratory demonstrations of special technics. All visiting professors have been selected as guest speakers at the regular meetings of the Jefferson County Medical Society.

MARYLAND

Winford Smith Leaves Johns Hopkins Hospital.—Dr. Winford H. Smith, since 1911 director of Johns Hopkins Hospital, Baltimore, has announced his retirement, effective March 31. Dr. Edwin L. Crosby Jr., assistant director since 1940, has been named to succeed Dr. Smith. The latter graduated at Johns Hopkins University School of Medicine in 1903 and Dr. Crosby at Albany Medical College in 1933.

MISSOURI

Society to Receive Bequest Under Physician's Will.—The will of Dr. Paul F. Stookey, Kansas, who died in November, provided that after his widow's death half of the estate should go to St. Mary's Hospital and half to the building fund of the Jackson County Medical Society.

Loan Fund Named for Iberia Physician.—Iberia Junior College recently created a loan fund to assist young men and women to become physicians and nurses in memory of the late Dr. John L. Benage, one of the alumni of the college. The physician, who died in June 1945, graduated in a class of five at the college in 1895. In 1901 he graduated at St. Louis College of Physicians and Surgeons, entering private practice in Iberia the same year. In 1914 he moved to Lebanon.

State Medical Meeting.—The Missouri State Medical Association will hold its scientific meeting at the Jefferson Hotel, St. Louis, March 24-26 under the presidency of Dr. Arthur S. Bristow, Princeton. Included in the program, which has been divided into four sessions, on blood, on the chest, on the kidney and hypertension and on electrolyte and water balance, are:

Dr. Harry Agress, St. Louis, Experiences with Blood Banking in Europe and Application of Blood Banks to Civilians.
Dr. Henry C. Allen, St. Louis, Clinical Significance of the Rh Factor.
Dr. Leo J. Wade, St Louis, Recent Observations on Anemia in Scurvy.
Dr. Carl V. Moore, St. Louis, The Antianemic Activity of Folic Acid.
Dr. Jay A. Myers, Minneapolis, Tuberculosis.
Dr. Ralph A. Kinsella, St. Louis, The Pneumonias.
Dr. Evarts A. Graham, St. Louis, Chest Tumors.
Dr. James L. Mudd, St. Louis, Chronic Suppurations.
Lieut. Col. Brian B. Blades, St. Louis, War Injuries to the Chest.
Dr. Leroy Sante, St. Louis, X-Ray of Chest.
Dr. Burton E. Hamilton, Boston, The Heart in Pregnancy.
Dr. William H. Olmsted, St. Louis, Recent Advances in Renal Function Tests.
Dr. Edward Massie, St. Louis, Clinical Correlations Between the Kidney and Hypertension.
Dr. Dalton K. Rose, St. Louis, Renal Lithiasis: Recent Advances in Treatment.
Dr. Edward H. Reinhard, St. Louis, Renal Insufficiency in Extrarenal Disease.
Dr. Raywood O. Muether, St. Louis, Normal Mechanisms and Methods of Administration and Dangers.
Dr. Alexis F. Hartmann, St. Louis, Problems in Pediatrics.
Dr. Robert Elman, St. Louis, Problems in Surgery.
Dr. James B. Stubbs, St. Louis, Problems in Medicine.

NEW JERSEY

Society of Surgeons.—The Society of Surgeons of New Jersey held its annual meeting in Plainfield January 30. Among the speakers were:

Dr. William B. Fort, Plainfield, Gynecology in the Child Bearing Period.
Dr. Paul Geary, Plainfield, Surgical Treatment of Thoracic Disease.
Dr. Nathaniel B. Stanton, Plainfield, A Device to Simplify End to End Anastomosis of the Large Bowel.
Dr. Thomas M. Morris, Plainfield, Urologic Accidents During Abdominal Surgery.

Treatment of battle casualties in World War II was discussed by Drs. Charles A. Hoffman, Plainfield, Charles T. Steffens, Dunellen, and Spencer T. Snedecor, Hackensack. Major Gen. Norman T. Kirk, surgeon general of the Army, addressed the dinner meeting on "The Remaining Task." Dr. Joseph H. Oram, Paterson, was elected president of the society and Dr. Walter B. Mount, Montclair, reelected secretary.

NEW YORK

Physician Honored for Twenty-Five Years' Service.—Dr. David B. Jewett, Rochester, was given a tea January 16 to observe his recent completion of twenty-five years' service as chief of the medical service of Genesee Hospital. According to the Rochester *Democrat and Chronicle* Dr. Jewett, who has been associated with Genesee Hospital since he served his internship there, has been named emeritus director of medicine, a newly created position. Dr. Charles Boller, Rochester, formerly a member of the medical staff, is the new medical director.

Spa Water Used in Therapy of Rheumatic Disease.—A long term experiment on treatment of chronic rheumatic ailments at the Saratoga Spa was inaugurated January 16 by Dr. Walter S. McClellan, Saratoga Springs, medical director. A group of patients with various rheumatic conditions will receive a series of treatments involving use of natural spa mineral water and water fortified with additional radioactive substances. The Saratoga Spa is owned by the state.

Public Meeting on Cancer.—February 28 has been designated cancer teaching day in Jamestown. The program, which is presented under the auspices of the Medical Society of the County of Chautauqua, the Jamestown Medical Society, the Medical Society of the State of New York and the state division of cancer control, will be conducted by:

Dr. Louis C. Kress, Buffalo, What the Public Should Know About Cancer.
Dr. Clyde L. Randall, Buffalo, Malignancies of the Uterus.
Dr. Samuel J. Stabins, Rochester, Cancer of the Breast.

Prizes to Be Awarded.—The Merrit H. Cash Prize and the Lucien Howe Prize will be open for competition at the next annual meeting of the Medical Society of the State of New York. The Lucien Howe Prize of $100 will be presented for the best original contributions on some branch of surgery, preferably ophthalmology. The author need not be a member of the Medical Society of the State of New York. The Merrit H. Cash Prize of $100 will be given to the author of the best original essay on some medical or surgical subject. Competition is limited to the members of the Medical Society of the State of New York who at the time of competition are residents of New York. All essays must be presented not later than April 1 and sent to Dr. Gordon Heyd, chairman of the committee on prize essays of the Medical Society of the State of New York, 292 Madison Avenue, New York 17.

New York City

Rabies Quarantine Extended.—The New York City State Department of Health has continued its antirabies quarantine in the boroughs of Brooklyn and Queens for a period not exceeding six months from February 3.

The Rothschild Lecture.—Selman A. Waksman, Ph.D., microbiologist, Agricultural Experiment Station, New Brunswick, N. J., will give the eighth Marcus A. Rothschild Lecture at Beth Israel Hospital, March 6, on "Streptomycin: Isolation, Nature and Application."

The John Wyckoff Lectures.—Dr. Eugene M. Landis, George Higginson professor of physiology, Harvard Medical School, Boston, gave the John Wyckoff Lectures on "Interactions of Vascular Volume and Circulatory Function" at the New York University College of Medicine. The first lecture was given January 17 on "Quantitative Aspects of Vascular Volume and Acute Circulatory Failure" and the second January 18 on "Cardiac 'Competence,' Venous Pressure and Vascular Volume in Relation to Exercise and Plethora."

Beth Israel Hospital Joins New York University in Postgraduate Work.—Beth Israel Hospital, under the direction of Dr. Maxwell S. Frank, medical director, is now participating in the postgraduate division of New York University College of Medicine. Dr. William Goldring, associate professor of medicine at the medical school, has been appointed liaison officer between the college and the hospital. For many years undergraduate elective courses in internal medicine have been given at Beth Israel Hospital. Under the more active affiliation, postgraduate courses may be offered in all services of the hospital. Plans are also being considered whereby residents at the hospital can secure training in the sciences at the college.

Personal.—Dr. Arthur C. Allen, who has served in the Army of the United States for the past three and a half years as pathologist at the Army Institute of Pathology, Washington, D. C., has been appointed associate professor of pathology at New York Medical College, Flower and Fifth Avenue Hospitals.——Dr. Eleanor M. A. Campbell, co-founder of the Judson Health Center, was guest of honor at a reception January 15 given in recognition of the twenty-fifth anniversary of the establishment of the health agency. Dr. Campbell founded the center twenty-five years ago with the late A. Ray Petty, pastor of the Judson Memorial Church.——Dr. Michael Lake has returned from a military leave of absence to his position of medical director of Macy's.

Premedical Society Affiliates with Alpha Epsilon Delta.—Skulls, premedical society of Cornell University Medical College, on January 12 became affiliated with Alpha Epsilon Delta, national honorary premedical fraternity, on installation as the New York Alpha chapter. The initiation of twenty-three active and five honorary members was conducted by Hugh E. Setterfield, Ph.D., associate professor of anatomy at Ohio State University College of Medicine, Columbus, and national president of Alpha Epsilon Delta, and Maurice L. Moore, Ph.D., assistant director of research, Frederick Stearns and Company Division, and national secretary. Skulls was organized at Cornell during the fall of 1927 under the auspices of Dr. James W. Papez, professor of anatomy, Cornell University Medical College, and with its installation became the thirty-fifth chapter of Alpha Epsilon Delta.

NORTH CAROLINA

Personal.—Dr. Basil T. Bennett, Jr., Trenton, Tenn., has been appointed medical director of Highland Hospital, Asheville, to succeed Dr. Robert S. Carroll, founder of the hospital. Dr. Otto Billig, Asheville, has been named clinical director. The hospital was founded by Dr. Carroll in 1904 under the name of Carroll's Sanitarium; in 1912 its name was changed to Highland Hospital and in 1940 the hospital was given to Duke University School of Medicine, Durham, to be used in connection with its department of psychiatry.——Dr. Roy McKnight, Charlotte, is the new president of the North Carolina State Board of Medical Examiners.

William Fleming Goes to Boston.—Dr. William L. Fleming, research professor of syphilology of the University of North Carolina School of Public Health, Chapel Hill, since 1939, resigned on Dec. 31, 1945 to become chief of the genito-infectious clinic and associate professor of medicine at the Boston University School of Medicine, Boston, effective January 1. Dr. Harold J. Magnuson, Baltimore, passed assistant surgeon of the U. S. Public Health Service, has been appointed research professo: [illegible] medicine in the School of Public Health, [illegible] Dr. Magnuson has been first assistant to Dr. Harry Eagle in the experimental syphilis laboratories at Johns Hopkins University since 1943.

OHIO

Claude Perry Named Acting Chairman of Department.—Dr. Claude S. Perry, Columbus, has been named acting chairman of the department of ophthalmology, Ohio State University College of Medicine, Columbus, with the rank of associate professor. Dr. Albert D. Frost, professor and head of the department of ophthalmology, died Nov. 15, 1945.

Personnel Changes of State Association.—Mr. George H. Saville, who joined the headquarters staff of the Ohio State Medical Association in May 1935 as assistant executive secretary, has been named director of the department of public relations of the association, effective January 1. The position has been vacant since March 1, 1943. Mr. Saville, who will continue as assistant executive secretary, has been serving also as news editor of the *Ohio State Medical Journal*. Mr. Hart F. Page has been named to fill this position and serve as assistant to the director of public relations. Mr. Page was recently released from the navy.

Mental Health for Every One.—The Welfare Federation of Cleveland devoted four sessions to the discussion of mental health at its fourth annual health and welfare institute in the Carter Hotel, Cleveland, February 19. "Mental Health for Every One" was the theme of the sessions. At one session on "Mental Health in the Wake of War" Dr. Douglas D. Bond, director of the division of psychiatry at University hospitals, Cleveland, was chairman, and speakers included Lieut. Col. Oscar B. Markey, Cleveland, consultant in psychiatry for the United States 10th Army; Dr. Ewing H. Crawfis, Lima, superintendent of Cleveland State Hospital and consultant to Selective Service boards, and Dr. Edward J. Humphreys, assistant director of the Ohio state division of mental hygiene.

PENNSYLVANIA

Geisinger Hospital Receives $100,000.—The George F. Geisinger Memorial Hospital, Danville, has received a gift of $100,000 from Mr. C. S. Woolworth, recent chairman of the board of the Woolworth stores. The gift is an outright one and is to be used for any purpose to which the trustees wish to put it. Mr. Woolworth has been a member of the advisory board of the hospital for many years.

Secretaries' Conference.—The Medical Society of the State of Pennsylvania will conduct a Secretaries-Editors Conference at the Penn-Harris Hotel, Harrisburg, March 7-8. The program will include the following speakers:

Drs. Francis F. Borzell, Philadelphia, Joseph W. Post, Philadelphia, and Louis W. Jones, Wilkes-Barre, Public Relations à la 1946.
Dr. Louis H. Bauer, Hempstead, N. Y., Medical Care for the American People Through Implementing the Profession's Program.
Major General Paul R. Hawley, M. C., Washington, D. C., Medical Care—Shall the Veteran Have Free Choice of Physician?
Dr. John A. Daugherty, Harrisburg, Pa., Medical Service Association of Pennsylvania.

Philadelphia

Hospital Provides Space for Returning Staff Members.—The Pennsylvania Hospital has established the Clinton Street Building to provide office space for members of its staff and especially returning medical officers connected with the institution.

Appointments at Temple.—Dr. Curtiss B. Hickox, Hartford, Conn., has been appointed professor and head of the department of anesthesiology at Temple University School of Medicine and Hospital. Dr. Dean A. Collins has been named professor of physiology, of which department Dr. Morton J. Oppenheimer is head.

Joseph Hughes Named Professor of Psychiatry.—Dr. Joseph T. Hughes, who has been serving in the U. S. Navy since 1943 and recently as chief of the neuropsychiatric service at the Philadelphia Navy Hospital, has been appointed professor of psychiatry at the Woman's Medical College of Pennsylvania to succeed the late Dr. Harold D. Palmer. Dr. Hughes graduated at the University of Pennsylvania School of Medicine in 1929.

Centennial Meeting of Society.—The Northern Medical Association of Philadelphia, second oldest medical society in the city and founded in 1846, will celebrate its centennial anniversary December 5 under the presidency of Dr. Myer Solis-Cohen, assistant director of health of Philadelphia. A special centennial committee has been named, of which Dr. Maurice S. Jacobs is the general chairman. The committee consists of the 1946 officers and the past presidents of the society. The 1946 president, Dr. Solis-Cohen, is the son of the late Dr. Jacob Solis-Cohen, who was president in 1875.

The Diabetic Survey.—Between December 1 and January 15, 296 diabetic patients were given x-ray examinations at the photofluorographic unit installed in the Maloney Building of the University of Pennsylvania Hospital as a part of the survey of diabetic patients carried on by Philadelphia health authorities (THE JOURNAL, Nov. 10, 1945, p. 758). Of the group x-rayed, 230 have been clinic patients and 66 private patients. Arrangements have been made for the diabetic clinic patients at Woman's Hospital and Presbyterian Hospital to be x-rayed while the unit is in the Maloney Building, where it will be located through February 28, when it will be moved to the metabolic division at the Philadelphia General Hospital.

TEXAS

Alpha Omega Alpha Lecture.—Dr. Edward L. King, professor of obstetrics, Tulane University of Louisiana School of Medicine, New Orleans, delivered the annual Alpha Omega Alpha Lecture at the University of Texas Medical Branch, Galveston, January 31 on "Clinical Aspects of the Rh Factors."

Personal.—Dr. and Mrs. J. G. Dodge, Abilene, observed their golden wedding anniversary recently.——Dr. Edward B. Rickey, Shafter, has been appointed director of the Jim Wells-Duval County Health Unit, Alice.——Dr. Sidney W. Bohls, Austin, director of the bureau of laboratories for the Texas State Department of Health, has resigned.

Special Society Election.—At a meeting of the Texas Society of Pathologists in Dallas, January 27, Dr. David A. Todd, San Antonio, was named president-elect. Other officers are Dr. May Owen, Fort Worth, president; Dr. Sidney W. Bohls, Austin, vice president; Dr. Charles T. Ashworth, Dallas, secretary, and Dr. Atticus J. Gill, Dallas, assistant secretary. The next meeting of the society will be held in Galveston, May 5.

VERMONT

Grants for Research.—The University of Vermont College of Medicine, Burlington, announces the following grants to its department of biochemistry: Armour and Company of Chicago have given a $2,000 grant to Edwin E. Hays, Ph.D., St. Louis, for studies on anemia. Grants given to the department of biochemistry for studies to be conducted under the direction of Harold B. Pierce, Ph.D.; assisting in the studies are Drs. Chester A. Newhall, Thomas B. Tomasi and Theodore H. Harward, all of Burlington. Miss Susan B. Merrow has been appointed nutritionist, R. F. Krause and Mrs. Ruth Law chemists and Mrs. M. B. Shepard assistant in the department. Milbank Memorial Fund, $17,700 for a two year study of the nutritional status of Vermont children. Merck and Company, Inc., $6,300 for a one year study of folliculosis among children.

VIRGINIA

Hospital Board Awards Prizes.—The Virginia State Hospital Board recently awarded prizes to physicians in the several state hospitals for meritorious papers submitted on varying subjects. Dr. Edgar L. Crumpacker, Roanoke, who is now on leave from the Eastern State Hospital in military service, and Dr. Walther Riese, Williamsburg, pathologist for the hospital, won first prize of $225 for a paper on "Studies in Brain Tumors." Dr. Paul Zwick, Manon, of the Southwestern State Hospital, won second prize of $125 for a paper entitled "Study of a Case of Fire Setting," and Dr. Vincent E. Lascara, Petersburg, of Central State Hospital, third prize of $50 on "A Study of the Use of Penicillin in the Treatment of Neurosyphilis." This is the second award made by the board (The Journal, Feb. 27, 1943, p. 693).

WASHINGTON

Personnel Changes in State Health Department.—Dr. Ralph R. Sachs, Richland, was appointed head of the field consultant section in the division of local health services, Washington State Department of Health, effective January 14. He was formerly public health supervisor for the Hanford Engineer Works, Washington's atomic bomb project. He graduated at Wayne University College of Medicine, Detroit, in 1937. Mr. Ralph L. Nielsen was recently appointed director of the hospital survey and health center facilities throughout the state as a prerequisite for formulating a plan for the coordinated development of hospital facilities. Mr. Nielsen was formerly assistant agriculture economist for the southwest region of the U. S. Department of Agriculture and was stationed at Berkeley, Calif.

WEST VIRGINIA

Annual Health Conference.—The annual state health conference will be held at the Prichard Hotel, Huntington, May 2-4. The state health department has already arranged for exhibits at the conference, and local health workers will be asked to provide displays. An institute for clerks of local health departments will be conducted in connection with the meeting to provide an opportunity for group discussion of current problems.

Personal.—Dr. Henry H. Hancock, Union, has been appointed by Governor Clarence W. Meadows as superintendent of the Andrew S. Rowan Memorial Home for aged and infirm white men and women at Old Sweet Springs, Monroe County, to succeed Dr. George P. Evans, Iaeger, who resigned effective February 1. Dr. Evans has served as superintendent since July 1, 1945. Previously he had been engaged in industrial practice at Iaeger in McDowell County.

Thomas Nale Goes to New York.—Dr. Thomas W. Nale, South Charleston, medical director at the South Charleston plant of the Carbide and Carbon Chemical Corporation, has been transferred to the New York office of the parent company, Union Carbide and Carbon Corporation, and will assume his new duties there shortly after the first of March. In New York Dr. Nale will be associated with Dr. Arthur G. Cranch, New York, toxicologist for the Union Carbide Company and serving as consultant in medical and toxicology problems for the medical directors of the various plants owned by the company. Dr. Nale has been medical director at the South Charleston plant since 1941. Previously he was connected with the state health department at Charleston.

Changes in Health Personnel.—Dr. Don V. Hatton, Williamson, has been appointed by the Public Health Council as full time county health officer for Mingo County. He succeeds Dr. Sixtus G. Bando, who is taking a course in public health at Johns Hopkins University School of Medicine, Baltimore. Dr. Charles Scott McKinley, Charleston, director of the bureau of industrial hygiene of the West Virginia State Health Department since May 1943, has resigned to accept appointment as medical director and plant physician for the Bakelite Company at Boundbrook, N. J., effective February 1. Dr. Clarence I. Butte Jr., Matoaka, recently returned from military service, has been appointed health officer for the city of Matoaka to succeed Dr. Frederic C. Goodall, who has moved to Princeton.

GENERAL

Examinations in Dermatology and Syphilology.—The American Board of Dermatology and Syphilology announces that the next oral examination for both A and B candidates will be held in San Francisco, June 28-29. The written examination for Group B will be held on April 22. The closing date for applications is March 1. Dr. George M. Lewis, 66 East 66th Street, New York, is secretary.

Planning Service for Children.—At least six state legislatures have set up special bodies to deal with services for youth. The states are Georgia, Illinois, Kentucky, Michigan, Missouri and New York. The program is being done in line with the proposal made by the National Commission on Children in Wartime in its recent recommendations for overcoming obstacles in planning for postwar needs.

Tests for Technicians.—The next examination by the American Orthoptic Council will be held in September and October. The written examinations will be held at various cities in the country, September 6. Only those passing the written examinations will be permitted to take the oral and practical tests, to be given in Chicago, October 12. Applications on official forms must be received before July 1. Address the American Orthoptic Council, 23 East 79th Street, New York 21.

The Kellersbergers Plan Tour for Mission to Lepers.—Dr. and Mrs. Eugene R. Kellersberger, New York, general and promotional secretaries respectively of the American Mission to Lepers, will begin a tour to certain points of the Western Hemisphere and Africa in March. They plan to return to the United States in the end of September. The tour is being made at the request of the board of directors of the American Mission to Lepers to strengthen the existing work and obtain more detailed information about it.

Director of Physical Medicine for Crippled Children.—Lieut. Col. George D. Wilson, on terminal leave from the army and formerly of Kernersville, N. C., has been appointed director of physical medicine for the National Society for Crippled Children and Adults, 11 South La Salle Street, Chicago 3. The appointment marks another step in the expanded program of the national society. Dr. Wilson will act in an advisory capacity in the society's program to assist communities throughout the country in meeting the medical problems posed by handicapped persons.

Meeting on Psychosomatic Problems.—The American Society for Research in Psychosomatic Problems will hold its annual meeting at the Hotel Pennsylvania, New York, May 11-12. The morning of the first day will be devoted to "Contributions of Military Medicine to Psychosomatic Medicine" and the afternoon session to "Psychosomatic Aspects of Orthopedic Practice." The annual dinner will be addressed in the evening by Dr. Bertram D. Lewin, New York, on "New Advances in Psychosomatic Investigative Technics." The headquarters of the American Society for Research in Psychosomatic Problems is located at 714 Madison Avenue, New York 21.

Symposium on Premedical Advisory Problems.—Alpha Epsilon Delta, national honorary premedical fraternity, in conjunction with the section on medical sciences, is arranging a special program on premedical advisory problems for the meeting in St. Louis of the American Association for the Advancement of Science. The meeting will be held at the Coronado Hotel, March 29. Dr. Carlyle F. Jacobsen, assistant dean, Washington University School of Medicine, St. Louis, will present a thorough discussion of the use and measurement value of the various objective methods of investigating the educational backgrounds of the student, and Dr. George T. Harding, Ohio State University College of Medicine, Columbus, will discuss the personality traits to be found and recognized in recommending students for the study of medicine. The second half of the program will deal with the length and content of the premedical curriculum. Dean Stanley Dorst, University of Cincinnati School of Medicine, will present the point of view of the medical school and Dr. William C. Cole, Rutgers University, New Brunswick, N. J., that of the liberal arts college.

Red Cross Field Directors in Veterans' Hospitals.—Red Cross field directors are now stationed at thirty-five Veterans Administration hospitals and others will be appointed to additional hospitals in the near future, it was announced January 28. Forming part of the recently established Red Cross Service in veterans' hospitals, these field directors work closely with Red Cross Gray Ladies, arts and skills instructors, motor and canteen corps workers, nurse's aides, dietitian's aides and others serving such institutions, to develop well rounded programs for disabled veterans. In addition they assist with distribution of athletic and other special equipment and supplies provided by the Red Cross production corps, camp and hospital councils and Junior Red Cross to cheer and comfort patients. Veterans Administration hospitals throughout the nation are being staffed by the Red Cross with permanent field directors as fast as they can be trained and assigned. The Veterans Administration has ninety-seven hospitals and homes in operation, and this number will grow as the construction program develops in the next few years.

Special Society Elections.—At the annual meeting of the American Otological Society, Inc., in 1944 Dr. Gordon Berry, Worcester, Mass., was elected president and Dr. William E. Grove, Milwaukee, vice president. The 1945 session of the society was canceled and the officers were held over. However, when Dr. Isidore Friesner, New York, secretary-treasurer of the society, died in September 1945, the council appointed Dr. Gordon D. Hoople, Syracuse, N. Y., secretary-treasurer pro tem to fill the unexpired term. The 1946 meeting of the society will be held at the Drake Hotel, Chicago, May 31-June 1.——Dr. Daniel C. Elkin, Atlanta, Ga., was named president of the Southern Surgical Association at its meeting in December at Hot Springs, Va. Dr. Alfred Blalock, Baltimore, was in 1943 elected to a term of five years as secretary. The next annual session will be held at the Homestead, Hot Springs, Va.——The American Congress of Physical Medicine is continuing its officers until the next annual meeting at the Hotel Pennsylvania, New York, September 4-7. Dr. Walter S. McClellan, Saratoga Springs, N. Y., is president-elect and Dr. Miland E. Knapp, Minneapolis, president. Marion G. Smith, B.Sc., 30 North Michigan Avenue, Chicago 2, is executive secretary.

Preceptorships in Pediatrics and Ophthalmology.—The American Board of Pediatrics announces that preceptorships will not be acceptable as preliminary pediatric training but may be used as refresher work and accredited time in practice by those who have completed their preliminary training. The board wishes to correct any other impression that has been made concerning preceptorships. The American Board of Ophthalmology announces that, with regard to the substitution of a preceptorship for residency in an ophthalmic hospital, it has always accepted such training in favorable cases. During the present overcrowding of facilities the board expects to take a liberal attitude regarding the requirements for training. It should, however, be pointed out that neither a residency nor a preceptorship suffices in itself to meet the requirements of the board. Each case will still be judged on its merits in determining fitness for examination. In entering on preceptorship certain conditions should be kept in mind. First the student will profit most after a sound course in the basic sciences of physiology of the eye and of vision, optics, pathology, bacteriology, chemistry, pharmacology, the relation of the eye to general disease; anatomy, embryology and neurology. This is essential for a residency, more so for a preceptorship. While men have been accepted from preceptors not specialists accredited by the board, it is obvious that the board has more information about those teachers who have passed its examinations.

Medical Science and Industry.—Section N of the American Association for the Advancement of Science will devote its meeting in St. Louis, March 27-30, to a symposium on medical science and industry. It is organized in cooperation with the Council on Industrial Health of the American Medical Association. A tentative program lists the following speakers:

Joyce C. Stearns, Ph.D., St. Louis, Atomic Disintegration.
Dr. Andrew H. Dowdy, Rochester, Controlled Nuclear Energy. Its Attendant Hazards and Benefits.
J. M. Dallavalle, New York, Health Protection in the Production and Use of Atomic Energy.
Dr. Burrill B. Crohn, New York, Trauma in Relation to the Gastro-intestinal Tract.
Dr. George G. Ornstein, Staten Island, N. Y., Trauma in Relation to Lungs and Pleura.
Dr. Alfred P. Solomon, Chicago, Traumatic Neuroses in Industry.
Dr. Paul D. White, Boston, Trauma and Heart Strain.
Major Gabriel Seelig, St. Louis, Compensation in Single Trauma Car-cinoma.
Dr. Robert Elman, St. Louis, Recovery and Convalescence as Related to Traumatic Injury.
Dr. Thomas H. D. Storms, Toronto, Canada, Functional Rehabilitation.
Orlo L. Crissey, Flint, Mich., Selective Job Placement.
Dr. Hyman Meltzer, St. Louis, Personality Problems as They Occur in Management Group.
Dr. Hugh Ross, Montreal, Quebec, Canada, The Psychiatric Component in Personnel Problems.
Dr. Raymond Hussey, Detroit, Scope of Occupational Health and Medicine.
Dr. Carl M. Peterson, Chicago, Program of the Council on Industrial Health of the American Medical Association.
Dr. Paul A. Neal, Bethesda, Md., The Toxicity of DDT to Man.
Dr. Warfield T. Longcope, Baltimore, The Importance of Researches on War Gases to Clinical Medicine.

Rockefeller Grant to National Health Council.—A special grant of $78,500 has been made to the National Health Council by the Rockefeller Foundation to support a program of coordination of the voluntary health agencies of the country, it was announced February 4. This grant, covering operations of the council for 1946, will be used to strengthen and unify the work of the nation's 20,000 privately supported health societies whose activities have been the subject of a study by the council over the past four years. Under a new director, who will head the organization, and with its own qualified field services, the council will be able to assume the leadership for which the national situation as well as the local agencies have been calling, it was stated. The Rockefeller Foundation's aid in 1921 made possible the establishment of the National Health Council and financed the Gunn-Platt study begun some four years ago to estimate the value of the existing voluntary agencies (The Journal, Dec. 8, 1945, p. 1037). The organization of a Citizen Planning Committee marked the first step to obtain lay sponsorship for the program (The Journal, February 2, p. 298). Under the Rockefeller Foundation grant the National Health Council plans for the coming year will include facilities for joint planning, joint activities and joint services for the national agencies, the organization of new and the strengthening of established health councils in cities throughout the country, and an active field service to give practical counsel to local agencies on their organization problems. In order to demonstrate the soundness of its program, the council hopes to finance demonstrations in the coordination of health agencies in a number of cities and in one state. It will cooperate closely with the Community Chests and councils and will study the possibilities of one unified fund raising campaign, based on the National War Fund technics for such of the national health agencies as wish to join in a united effort.

FOREIGN

New Indian Department of Health.—The government of India established on September 1 a department of agriculture, a department of health and a department of education in place of the existing single department of education, health and lands, it is reported. Sir Sardar Jogendra Singh, minister in charge of the conjoint department in the viceroy's executive council, will for the time being take charge of all three departments.

Proposed National Health Service.—During December a set of principles was drawn up and agreed on for a proposed national health service by the negotiating committee representing the British Medical Association, the Royal College of Physicians of London, the Royal College of Surgeons of England, the Royal College of Obstetricians and Gynaecologists, the Royal Scottish Medical Corporation, the Society of Medical Officers of Health and the Medical Women's Federation. The *British Medical Journal* states that all government proposals for a national health service should be looked on in terms of these principles, and when the principles are infringed in any one particular the medical profession should be able to unite itself in opposition. As long as none of these principles are infringed the profession should find no difficulty in cooperating with the government in working out the administration of a national health service. The principles are:

The medical profession is, in the public interest, opposed to any form of service which leads directly or indirectly to the profession as a whole becoming full time salaried servants of the state or local authorities.

The medical profession should remain free to exercise the art and science of medicine according to its traditions, standards and knowledge, the individual doctor retaining full responsibility for the care of the patient and freedom of judgment, action, speech and publication without interference in his professional work.

The citizen should be free to chose or change his or her family doctor, to choose, in consultation with his family doctor, the hospital at which he should be treated, and free to decide whether he avails himself of the public service or obtains independently the medical service he needs.

Doctors should, like other workers, be free to choose the form, place and type of work they prefer without governmental or other direction.

Every registered medical practitioner should be entitled as a right to participate in the public service.

The hospital service should be planned over natural hospital areas centered on universities in order that these centers of education and research may influence the whole service.

There should be adequate representation of the medical profession on all administrative bodies associated with the new service in order that doctors may make their contribution to the efficiency of the service.

CORRECTION

Bacillary Dysentery.—The title of Major L. A. Smith's paper published in The Journal, January 5, should have been "Bacillary Dysentery" rather than "Shiga Dysentery."

Deaths

Mazyck Porcher Ravenel ⊕ Columbia, Mo.; Medical College of the State of South Carolina, Charleston, 1884; born in Pendleton, S. C., June 16, 1861; professor of medical bacteriology and preventive medicine from 1914 to 1936 and since 1936 emeritus professor at the University of Missouri School of Medicine, where he had been director of the public health laboratory; bacteriologist, state live stock sanitary board from 1896 to 1904; chief of the laboratory of the Henry Phipps Institute in Philadelphia from 1904 to 1907 and formerly assistant medical director; professor of bacteriology at the University of Wisconsin in Madison from 1907 to 1914 and director of the state hygienic laboratory of Wisconsin from 1908 to 1914; first lieutenant in the medical reserve corps of the U. S. Army from 1910 to 1917, major in 1917 and lieutenant colonel in the medical corps of the U. S. Army from 1917 to 1919; in 1913 delegate from the Section on Preventive Medicine and Public Health, American Medical Association and chairman 1913-1914; member of the National Advisory Health Council, Public Health Service, American Philosophical Society, National Society for the Study and Prevention of Tuberculosis, serving as president, 1911-1912, American Public Health Association, president, 1920-1921, National Committee for Mental Hygiene, Wisconsin Anti-Tuberculosis Association and past president, American School Hygiene Association, and member of its council, International Association Against Tuberculosis, National Commission on Milk Standards, International Commission on Control of Bovine Tuberculosis and the U. S. Live Stock Sanitary Association, serving as president, 1911-1912; in 1922 appointed chief associate examiner in public health for the National Board of Medical Examiners and member of the council for the district of St. Louis; in 1933 made an honorary member of the Royal Sanitary Institute of Great Britain; in 1934 appointed a member of a committee to confer with federal authorities concerning a nation wide study of nutritional values of foods; in 1930 appointed consultant in public health and medical education to the Missouri State Board of Health; his former students presented to the University of Missouri School of Medicine an oil portrait of him; for sixteen years editor and editor in chief of the *American Journal of Public Health* of which he had been made editor emeritus in 1941; died January 14, aged 84, of pneumonia.

Andrew Francis McBride Sr., ⊕ Paterson, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1889; born on Jan. 4, 1869; served as mayor of Paterson and as state commissioner of labor; past president of the Passaic County Medical Society; a trustee of the Medical Society of New Jersey and in 1929 its president; member of the House of Delegates of the American Medical Association from 1938 through 1944; fellow of the American College of Surgeons; resigned in October 1945 after fifty-five years of service on the staff of St. Joseph's Hospital, where he interned; served during World War I; chairman of the board of directors of the Paterson Savings Institution, where in 1943 the "McBride Room" was dedicated to him and an oil portrait was unveiled; a member of the board of directors of the Citizens Trust Company; life member of the chamber of commerce; in 1939 created a Knight of the Order of St. Gregory the Great, Civil Class, by Pope Pius XII; died January 3, aged 76.

Henry Turner Brooks, New York; Albany Medical College, 1887; born in Baltimore in 1861; formerly instructor, adjunct professor and professor of pathology at the New York Post-Graduate Medical School; consulting pathologist to the New Rochelle (N. Y.) Hospital, Liberty (N Y.) Sanitarium, St. Mark's Hospital and Beth Israel Hospital; honored in 1945 by the Albany Medical College Alumni Association with a citation for fifty years of meritorious service to humanity; civil referee for the eastern division of the medical branch of the army during World War I; author of "Manual of Clinical Microscopy and Chemistry," translated from the German, in 1904, "Use of Microscope," "General and Special Pathology" and "Trichinosis"; editor of the *New York Post-Graduate Medical Journal* from 1902 to 1912; died in the New Rochelle (N. Y.) Hospital January 1, aged 84, of bronchopneumonia, cerebral hemorrhage and cerebral arteriosclerosis.

David Clark Hilton ⊕ Lincoln, Neb.; Rush Medical College, Chicago, 1903; born near Dorchester, Neb., April 23, 1877; formerly professor of surgical anatomy at the Nebraska College of Medicine and Surgery and professor of biology at the Cotner University; fellow of the American College of Surgeons; member of the American Association for the Advancement of Science and the Nebraska Ornithological Union, of which he was a past president; one of the organizers of the 110th Medical Regiment of the Nebraska National Guard in 1923, at which time he was commissioned a lieutenant colonel; later promoted to a full colonelcy and placed in command of the regiment; in 1940 placed on the inactive list with the rank of brigadier general; surgeon, Bryan Memorial Hospital; consulting surgeon, Veterans Administration Facility; died December 12, aged 68, of coronary sclerosis.

John Smith Wilson, Poughkeepsie, N. Y.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1887; member of the American Medical Association; past president of the Dutchess County Medical Society; served during the Spanish-American War and World War I; chairman of the local draft board during World War II; served as health officer of Poughkeepsie and as alderman from the Sixth Ward; for fourteen years school commissioner and in 1919 president of the board of education; served on the staffs of the Wassaic State School, Wassaic, Matteawan State Hospital, Beacon, Harlem Valley State Hospital in Wingdale, Hudson River State Hospital, St. Francis Hospital and the Vassar Brothers Hospital, where he died January 1, aged 80, of cerebral hemorrhage.

Philip Hale Pierson ⊕ San Francisco; Harvard Medical School, Boston, 1913; born in China in 1886; clinical professor of medicine (tuberculosis) at the Stanford University School of Medicine; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; vice president of the National Tuberculosis Association, which he served as a member of the board of directors; consultant in diseases of the chest, Community Hospital of San Mateo County, San Mateo, Hassler Health Home in Redwood City and the Veterans Administration Facility; chief of the department of tuberculosis, San Francisco Hospital and the Stanford University Hospital, where he died January 17, aged 59, of cerebral thrombosis.

Archibald Delap Smith ⊕ Garden City, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1902; member of the American Academy of Pediatrics; fellow of the American College of Physicians; past president of the Brooklyn Academy of Pediatrics and the Brooklyn Pediatric Society; member of the draft and appeal boards during World War I; head of a civilian defense medical unit in Garden City during World War II; consulting pediatrician, Rockaway Beach (N. Y.) Hospital and Dispensary and the Brooklyn Hospital, where he died November 22, aged 69, of coronary thrombosis.

Maximilian Stern ⊕ Daytona Beach, Fla.; Columbia University College of Physicians and Surgeons, New York, 1900; past president of the Volusia County Medical Society; fellow of the American College of Surgeons; attending urologic surgeon, Halifax District Hospital; consulting urologist, Deland Memorial Hospital, Deland, Harry Anna-Crippled Children's Home, Umatilla, the Hospital for Joint Diseases and the Harbor Hospital in New York; inventor of the "resectoscope," an instrument for the transurethral prostatic resection; died January 19, aged 68.

Waite Adair ⊕ Lorain, Ohio; Starling-Ohio Medical College, Columbus, 1911; served during World War I; died November 3, aged 60.

Fred Ernest Angle ⊕ Kansas City, Kan.; University of Kansas School of Medicine, Kansas City, 1926; at one time an officer in the U. S. Navy; fellow of the American College of Physicians; associate in medicine at his alma mater; attending physician, Providence, Bethany and St. Margaret's hospitals; died in the University of Kansas Hospital October 30, aged 45.

Robert Hodges Ariail ⊕ Laurens, S. C.; Medical College of the State of South Carolina, Charleston, 1929; interned at the Greenville City Hospital in Greenville; died November 12, aged 40, of angina pectoris.

Frederick E. Bauer ⊕ New York; University of the City of New York Medical Department, New York, 1888; one of the founders and director of the physical therapy department, Lutheran Hospital; at one time head of the physical therapy department at Fordham Hospital; died October 30, aged 80.

Ethel Remington Beede ⊕ Faribault, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1909; for many years on the staff of the Minnesota School for Feebleminded; died in Cheyenne, Wyo., October 13, aged 63, of coronary occlusion.

Robert B. Bennett, St. Charles, Mich.; Saginaw Valley Medical College, Saginaw, 1897; died in the Saginaw General Hospital, Saginaw, November 7, aged 73.

William Birnbaum ⊕ Tulsa, Okla.; University of Minnesota Medical School, Minneapolis, 1940; died in the Springfield Baptist Hospital, Springfield, Mo., November 9, aged 39, of injuries received in an automobile accident.

Sam Shirley Blackman Jr., Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1926; associate professor of pathology at his alma mater; member of the American Association of Pathologists and Bacteriologists; associate pathologist at the Johns Hopkins Hospital; accidentally drowned November 6 in Chesapeake Bay, aged 44.

Edwin A. Bowerman ⊕ Buffalo; College of Physicians and Surgeons, Baltimore, 1895; an Affiliate Fellow of the American Medical Association; past president and secretary of the Buffalo Academy of Medicine; physician for the city police department for many years; died in Lancaster, Pa., October 22, aged 74, of cerebral hemorrhage.

Horace Russell Boyer ⊕ Glendale, Calif.; University of Maryland School of Medicine, Baltimore, 1903; on the staff of the Physicians and Surgeons Hospital; died November 9, aged 68, of coronary thrombosis.

Clarence Walden Brown ⊕ Rolling Prairie, Ind.; Indiana University School of Medicine, Indianapolis, 1931; interned at St. Catherine's Hospital in East Chicago; died November 1, aged 48, of acute auricular fibrillation and coronary occlusion.

Gilbert Thómpson Brown ⊕ Dayton, Ohio, Starling Medical College, Columbus, 1895; fellow of the American College of Physicians; on the staffs of the Miami Valley and St. Elizabeth's hospitals; medical director of the Gem City Life Insurance Company; died November 17, aged 76, of coronary thrombosis.

Harry Seth Bull ⊕ Auburn, N. Y.; Syracuse University College of Medicine, 1908; past president of the Cayuga County Medical Society; member of the Radiological Society of North America, Inc.; served during World War I; served on the staffs of the Mercy Hospital and the Auburn City Hospital, where he died January 4, aged 61, of carcinoma of the throat.

Archibald McDowell Burfoot, Fentress, Va.; Baltimore Medical College, 1906; member of the American Medical Association; past president of the Seaboard Medical Association; died November 25, aged 61, of angina pectoris and hypertension.

William Henry Burroughs ⊕ St. Louis; St. Louis University School of Medicine, 1923; died in St. John's Hospital October 19, aged 55.

John LeRoy Burton, Buhl, Minn.; University of Minnesota Medical School, Minneapolis, 1936; village health officer of Buhl and Kinney; treasurer of the school board; on the staff of the Virginia Municipal Hospital in Virginia and the Range Hospital; died October 31, aged 41, of injuries received in an automobile accident.

William Edward Code, Chicago; Illinois Medical College, Chicago, 1904; member of the American Medical Association; died October 29, aged 67.

Alfred Peters Cole, Ironton, Ohio; College of Physicians and Surgeons, New York, 1891; served during World War I; formerly medical director of the Hamilton County Home and Chronic Disease Hospital in Cincinnati; died October 29, aged 78, of coronary thrombosis.

William James Coleman, Newport, Ky.; Jefferson Medical College of Philadelphia, 1909; died in the Baptist Hospital, Memphis, Tenn., November 13, aged 61.

Lubie G. Colley, Farmington, Ky.; University of Louisville Medical Department, 1897; member of the American Medical Association; died November 1, aged 71.

Olive Jerome Crawford, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1913; died November 2, aged 66.

Ralph P. Cummings, Conway, Ark.; Meharry Medical College, Nashville, Tenn., 1914; died October 14, aged 65, of chronic myocarditis.

Arthur Tappan Reed Cunningham, Honolulu, Hawaii; Western Reserve University Medical Department, Cleveland, 1900; member of the American Medical Association, North Pacific Surgical Association and the Washington State Medical Association; fellow of the American College of Surgeons; served on the staff of St. Luke's Hospital in Spokane, Wash.; died October 21, aged 72, of lymphatic leukemia.

Percy William Mark Curry, Cleveland; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1916; served with the Royal Army Medical Corps during World War I; on the staff of the Hawthornden State Hospital, Macedónia, Ohio; died in South Euclid November 20, aged 55, of carcinoma.

Byron Daniel ⊕ Sardis, Ga.; University of Georgia Medical Department, Augusta, 1900; died in Augusta in November, aged 70.

John Calhoun Davidson, Bryan, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1886; died November 4, aged 85.

James Joseph Derwin ⊕ Winsted, Conn.; Georgetown University School of Medicine, Washington, D. C., 1930; interned at St. Francis Hospital in Hartford; died in Boston September 9, aged 41, of septicemia.

George Washington Desrosier ⊕ Colusa, Calif.; Cooper Medical College, San Francisco, 1894; county physician; served as city and county health officer; on the staff of the Colusa Memorial Hospital; died October 25, aged 72, of heart disease and arteriosclerosis.

Charles G. Dick, Elwood, Ind.; Keokuk (Iowa) Medical College, 1895; died in Indianapolis November 25, aged 79, of hypostatic pneumonia.

Henry Charles Eichacker, Brooklyn; Long Island College Hospital, Brooklyn, 1914; member of the American Medical Association; past president of the Medical Society of Queens County; president of the Queensboro Surgical Society; member of the Brooklyn Gynecological Society; on the staffs of the Lutheran Hospital in Brooklyn and the Queens General Hospital in Jamaica; consultant to the Rockaway Beach (N. Y.) Hospital; died November 4, aged 54, of arteriosclerotic heart disease.

Gabriel M. Epstein ⊕ Philadelphia; Temple University School of Medicine, Philadelphia, 1929; on the staffs of the Philadelphia General, St. Luke's and Children's hospitals; interned at the Mount Sinai Hospital, where he was a member of the staff and where he died November 1, aged 41, of carcinoma.

Earl Fairbanks, Luther, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888; served as state senator and mayor; on the staff of the Mercy Hospital and Sanitarium in Manistee; died in Kalamazoo November 16, aged 85, of myocardial degeneration.

Floyd F. Farnsworth, Milton, W. Va.; Maryland Medical College, Baltimore, 1904; member of the American Medical Association; major, medical corps, U. S. Army, during World War I; affiliated with the U. S. Public Health Service from 1919 to 1923; for many years a member of the state board of medical examiners; first president and formerly director of the bureau of venereal diseases, state board of health; served as mayor of Milton; died January 2, aged 76, of heart disease.

Manning Cromwell Field, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1916; member of the American Medical Association and the American Academy of Pediatrics; specialist certified by the American Board of Pediatrics, Inc.; served during World War I; attending pediatrician at the Brooklyn Hospital and visiting pediatrician at Cumberland Hospital; died November 29, aged 54.

Percy Coupland Fisher ⊕ Ridgewood, N. J.; University of Vermont College of Medicine, Burlington, 1921; past president of the Ridgewood Medical Society; served during World War I; member of the courtesy staff of St. Joseph's and Paterson General hospitals in Paterson and the Hackensack (N. J.) Hospital; died in the Presbyterian Medical Center, New York, November 28, aged 51, of peritonitis following duodenal ulcer.

Thomas J. Gaffney, Lakeville, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1897; died in November, aged 76, of nephritis.

William Gauch, Newark, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1895; member of the American Medical Association; fellow of the American College of Surgeons; served during World War I; attending gynecologist and past president of the medical staff of the City Hospital; director of clinic, gynecologic department, Newark City Dispensary; on the staffs of St. James, Presbyterian and St. Michael's hospitals; died November 13, aged 72, of cerebral thrombosis and arteriosclerosis.

James Philip Goray ⊕ Fitchburg, Mass.; Harvard Medical College, Boston, 1891; specialist certified by the American Board of Ophthalmology; for many years member of the city school committee; on the staff of the Burbank Hospital; died November 12, aged 78, of arteriosclerosis and bronchopneumonia.

Arthur Rogers Grant, Utica, N. Y.; New York University Medical College, 1897; served overseas during World War I; fellow of the American College of Surgeons; for many years on the staff of the Utica Memorial Hospital; died in Pasadena, Calif., November 6, aged 73, of coronary thrombosis and generalized arteriosclerosis.

James Lonas Hardin, Sacramento, Calif.; Cooper Medical College, San Francisco, 1893; died November 18, aged 78, of coronary occlusion.

James Harkins Sr., Mount Pleasant, Pa.; Eclectic Medical Institute, Cincinnati, 1886; also a druggist; served as an officer in the Pennsylvania National Guard; veteran of the Spanish-American War; formerly county coroner, member of the borough council and school board; died in the Henry Clay Frick Memorial Hospital October 30, aged 82, of injuries received when he was struck by an automobile.

Charlton Sidney Harris ⊕ Indian Rocks, Fla.; Birmingham Medical College, 1914; served overseas during World War I; formerly physician for the Republic Steel Corporation in Sayreton, Ala.; died in the Veterans Administration Facility, Bay Pines, November 13, aged 60, of acute anemia and gastric hemorrhage due to ulcer.

William Mathias Hoel, Los Angeles; University Medical College of Kansas City, Mo., 1906; served in France during World War I; died October 28, aged 63, of coronary thrombosis.

John Henry Hohnstedt ⊕ Fort Thomas, Ky.; University of Louisville Medical Department, 1908; served during World War I; on the staffs of the St. Elizabeth and Booth Memorial hospitals in Covington and Speer's Memorial Hospital, Dayton, where he died October 28, aged 72, of coronary occlusion.

Evan Marshall Hutchins, North Wilkesboro, N. C.; North Carolina Medical College, Davidson, 1896; member of the American Medical Association; died October 30, aged 75.

Walter Kleberg ⊕ Galveston, Texas; University of Texas School of Medicine, Galveston, 1906; served as health officer of Galveston, died in November, aged 64.

Leon M. Kysor ⊕ Hornell, N. Y.; University of Buffalo School of Medicine, 1903; served as president of the Lake Keuka Medical and Surgical Association; veteran of the Spanish-American War and World War I; on the staffs of the Bethesda Hospital and St. James Mercy Hospital, where he died October 17, aged 73, of congestive heart failure and uremia.

Kathryn Rose Lavin, Flint, Mich.; Loyola University School of Medicine, Chicago, 1932; member of the American Medical Association; on the staffs of the Women's Hospital, Hurley Hospital and St. Joseph's Hospital, where she died October 21, aged 47, of carcinoma of the ovaries.

Frank Robert Lee ⊕ North Andover, Mass.; Tufts College Medical School, Boston, 1927; interned at the Lawrence General Hospital in Lawrence; died October 15, aged 41, of coronary thrombosis.

Marion Bates Leverett ⊕ McGehee, Ark.; University of Arkansas School of Medicine, Little Rock, 1934; interned at the Little Rock City Hospital, Little Rock, where he served a residency; on the staff of the Dermott Hospital in Dermott; died October 19, aged 36, of injuries received in an automobile accident.

Gomer S. Llewelyn ⊕ Mayview, Pa.; Chicago College of Medicine and Surgery, 1912; superintendent of the Mayview State Hospital; died in St. Margaret Memorial Hospital, Pittsburgh, November 21, aged 59, of cancer of the left kidney.

Thomas Ignatius Lynch ⊕ Louisville, Ky.; University of Louisville School of Medicine, 1925; died in the SS Mary and Elizabeth Hospital November 9, aged 45, of hypertensive heart disease.

John Malcolm MacLeod ⊕ Quincy, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1906; served as school physician and as city physician; for many years on the staff of the Quincy City Hospital; died October 19, aged 72, of coronary occlusion.

James Durant Macon, Meridian, Miss.; Meharry Medical College, Nashville, Tenn., 1912; died September 26, aged 62, of lobar pneumonia.

Frank T. Marr ⊕ Chillicothe, Ohio; College of Physicians and Surgeons, Baltimore, 1901; died October 28, aged 68, of cerebral hemorrhage.

Charles Summers Marsden ⊕ San Diego; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1903; died October 13, aged 72, of carcinoma of the cecum.

Emit Luther McCafferty, Mount Vernon, Ala.; Atlanta College of Physicians and Surgeons, 1902; member of the American Medical Association and the American Psychiatric Association; in 1939 a citation was voted to him by the Medical Association of the State of Alabama for early attempts at production and transmission of pellagra in 1907-1908; affiliated with the Searcy Hospital; died in an infirmary in Mobile, January 14, aged 68.

William James McCausland ⊕ Quincy, Mass.; Harvard Medical School, Boston, 1900; fellow of the American College of Surgeons; physician to the city board of health; member of the consulting staff of the Quincy City Hospital, where he died November 5, aged 70, of cerebral hemorrhage.

William Kenneth McCoy, Gum Spring, Va.; Medical College of Virginia, Richmond, 1900; died October 30, aged 72, of encephalitis.

Rogers William McKean ⊕ Fort Worth, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1917; died in the Gladewater Hospital, Gladewater, October 7, aged 57, of cirrhosis of the liver.

Frank E. McKim ⊕ Marietta, Ohio; Medical College of Ohio, Cincinnati, 1884; life member of the Ohio State Medical Association; died October 20, aged 84.

Hugh Clark McRee, Hartselle, Ala.; University of Nashville (Tenn.) Medical Department, 1898; member of the American Medical Association; formerly engaged in special work under the supervision of the bureau of preventable diseases of the state department of health; served as health officer of Lee and Marion counties; died in St. Vincent's Hospital, Birmingham, October 7, aged 69, of ruptured aneurysm of the abdominal aorta and generalized arteriosclerosis.

Jouett Menefee, Bonita Springs, Fla.; University of Louisville (Ky.) Medical Department, 1906; died October 26, aged 65, of mesenteric thrombosis.

Nelson B. Michael, Belington, W. Va.; Maryland Medical College, Baltimore, 1904; on the staff of the Tucker County Hospital, Parsons, where he died October 28, aged 70, of hypertensive heart disease with nephritis.

Caroline I. Peterson Mitchell, Orange, Texas; (licensed in Texas under the Act of 1907); died October 3, aged 72.

George Andrew Moore ⊕ Palmer, Mass.; College of Physicians and Surgeons, Boston, 1910; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staffs of the Monson State and Wing Memorial hospitals; died October 6, aged 74, of arteriosclerotic heart disease.

Edgar L. Morrill ⊕ Fort Collins, Colo.; John A. Creighton Medical College, Omaha, 1902; charter member and past president of the Larimer County Medical Society; served during World War I; eye, ear, nose and throat consultant for the county draft board during World War II; consultant in eye, ear, nose and throat to the Larimer County Hospital; died January 19, aged 69, of coronary thrombosis.

Andrew Nelson, Iron Mountain, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; died in the Veterans Administration Facility, Bay Pines, Fla., October 25, aged 75, of hypertensive heart disease.

Evertt Allen Oliver ⊕ Richland, Mo.; Marion-Sims-Beaumont Medical College, St. Louis, 1902; also a graduate in pharmacy; on the staff of the Waynesville (Mo.) Hospital; died October 6, aged 72.

Richard Willis Oliver, Louisville, Ky.; Louisville National Medical College, Medical Department State University, 1903; member of the staff of the Red Cross Hospital; died in Danville, Va., September 15, aged 70.

Sidney Nuttall Parkinson ⊕ Piedmont, Calif.; University of Pennsylvania School of Medicine, Philadelphia, 1926; interned at the Knickerbocker Hospital and the Manhattan Eye, Ear and Throat Hospital, both in New York; member of the Pacific Coast Oto-Ophthalmological Society; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve on July 18, 1942 and service terminated in June 1943; specialist certified by the American Board of Otolaryngology; died October 31, aged 46, of carcinoma of the lung.

Carl Richard Peterson ⊕ Chicago; Jenner Medical College, Chicago, 1906; Bennett Medical College, Chicago, 1913; died in Thomasville, N. C., November 7, aged 70, of cardiovascular disease.

Francis Xavier Pidgeon, New York; Albany (N. Y.) Medical College, 1896; served during World War I; for many years had been on the medical staff of the New York Central Railroad; died in the New York Post-Graduate Hospital October 31, aged 72.

Frances Elizabeth Potter, Upper Darby, Pa.; Temple University School of Medicine, Philadelphia, 1932; member of the American Medical Association; served on the staff of the Norristown State Hospital in Norristown; died November 3, aged 50.

tions to be noted are 2 instances of temporary albuminuria, 2 of urticaria, 2 of abscesses, 1 of dermatitis and 10 of transient stomatitis. This success with bismuth is more significant as arsenic resistance increases. Up to 16 per cent of the cases treated in a Lyons dermatology clinic have been resistant to arsenic compounds.

SWEDEN

(From Our Regular Correspondent)

STOCKHOLM, Jan. 15, 1946.

Seventy-Six Grants for Research in Medicine

On December 7 considerable sums of money were granted by the Therese and John Andersson Foundation to seventy-six medical research workers and institutions. The largest amount, 7,000 kronor, was given to Dr. L. Engstrand of Stockholm for research into intra-abdominal blood circulation with special reference to the portal blood and oxygen supply of the liver and its relation to the function of the liver under certain surgical conditions. Large sums were granted for research in a study of blood-building factors by Dr. G. Ågren of Uppsala University, a study of hypertension by Dr. P. Edman of Stockholm, a study of the importance in coronary diagnosis of heart function tests, particularly the hypoxemia test, by Dr. G. Nylin of Stockholm, a study of the toxic and therapeutic effects of dextran, the blood plasma substitute, by Dr. G. Thorsén of Stockholm, an investigation of the production of sexual hormones by the adrenal glands by Dr. Miriam Furuhjelm of Stockholm, an investigation by Dr. J. Agner of Stockholm of the formation and significance of verdoperoxidase, a study of the respective roles of the respiratory center and the peripheral chemo receptors in acclimatizing to oxygen deficiency by Dr. H. Bjurstedt of Stockholm, a study of osseous development in infancy by Dr. B. Malmgren of Stockholm and a study by Dr. E. Wassén and Dr. G. Zander of the effect of dicumarol on experimentally produced arthritis and other inflammatory conditions.

Swedish Hospital in Poland

In the little Polish town of Otwock, a few miles southwest of Warsaw, Swedish money and effort are combining to build a hospital to help relieve the suffering of Poland. The hospital consists of thirty-two buildings, it has beds for 300 patients, and it will cost about 3 million kronor. It is to be primarily a tuberculosis hospital but will also have a general medical division. Every bit of material for the actual building as well as the equipment and medicines have been sent from Sweden. Swedish engineers are directing the construction of the buildings and Swedish doctors the medical aspects of the project. In January a completely equipped tuberculosis dispensary, including the latest types of x-ray apparatus, left Stockholm headed by Dr. H. Neumüller, a specialist in this field. With him were a pediatrician, a nurse and an x-ray technician. A Polish tuberculosis specialist, Polish nurses and office help will assist Dr. Neumüller. The Swedes plan to run the hospital for a year and then turn it over to the Poles for future work.

Heavy Carbon Produced in Sweden

When news of the success of American scientists in producing heavy carbon reached Sweden, it was revealed that at the Wennergren Institute investigators have been working on this problem for several years and have also been successful in producing carbon 13. According to Professor John Runnström, the Swedish scientists built their apparatus according to the method developed by the American Nobel Prize winner Harold C. Urey and were able to produce small quantities of the substance. This led to investigations into albumin synthesis of micro-organisms. Unfortunately there is not as yet a mass spectrometer in Sweden, so that it has been necessary to forward preparations to the United States for analysis. However, this type of spectrometer is now being built and is expected to be ready in the near future.

Courses for "Sports Physicians"

The critical attitude of Swedish physicians has been evidenced in one of the greatest popular movements of this age, athletics. Because the physicians have refused to maintain that sports prolong life or protect from illness they have been accused of obstructing the progress of sports and of indifference to improving the health of the public. The result has been the development of quackery in connection with the physiology of athletics, training methods, diet and so on. Last year saw the development of closer cooperation between physicians and the sports movement, and far less indifference in Sweden. An important milestone was the opening of a so-called sports clinic at the Stockholm stadium in 1944, where a continuous control has been kept on athletics. Another measure of importance is the "ski doctors" course held during the winter at Storlien, the Swedish ski resort. In June 1945 the first summer course for doctors interested in athletics was held at the Athletic College at Bösön, Stockholm. The opening session was attended by fifteen pioneering physicians representing all ages and categories, from beginners to older army doctors. Those taking part in the course participated in most of the sports themselves, receiving instruction from experts in each field on training, exercising, diet and theory. Lectures were held on medical problems in athletics, especially heart ailments. There was discussion concerning problems connected with the medical care of athletes and those indulging in sports in general. The course was pronounced a success, an enterprise to be continued and broadened.

Increase of Syphilis in Sweden

In Sweden as in all other countries the incidence of venereal disease has increased in recent years. Formerly Scandinavia had an excellent record in this respect, but the war has had its effect here also. A recent report disclosed that from 1940 to 1943 the number of cases of gonorrhea in Sweden doubled, with about 20,000 new cases. In 1945, however, there were 15,590 cases, a decrease of about 4,000 from the previous year. This decrease is probably due to the new methods of treatment, including sulfonamides, fever and penicillin.

Since 1941 the number of cases of syphilis has increased fivefold, the figure in 1944 being 1,310 new cases, with even more in 1945. The Swedish health authorities are using arsphenamine and heavy metal salts in their treatment of syphilis and feel that Americans are overoptimistic on the basis of too little experience with penicillin to justify abandoning the older methods. Penicillin is used only when the orthodox treatment is not possible.

Large Donation to Institute for Cytologic Research

Professor Torbjörn Caspersson, chief of the Swedish Institute for Cytologic Research, has announced that the institute has received a gift of 336,000 kronor for a new building at the Karolinska Hospital in Stockholm. Although it has been doing remarkable work in cell research, the institute has been carrying on in rather primitive and cramped quarters; the new building will permit a larger staff and greater activity. Professor Caspersson has recently returned from a three months trip to the United States, where he had been invited by an organization for cancer research to take part in its convention and to report on his own work.

Swedish Physician to Lecture in the United States

Dr. Gunnar Bauer, who has achieved international recognition because of his heparin treatment for thrombosis, has been invited by American physicians to lecture in the United States. He plans to leave at the beginning of February and remain in the United States for about two months; then, at the invitation of the Danish Surgical Association, he will lecture on his treatment in Copenhagen.

Gonococcus Culture

According to a recent resolution of the Swedish parliament, any doctor may now requisition culture tubes from various bacteriologic laboratories and after taking a specimen submit it for analysis at the government's expense. From the northern part of the country, where there are no laboratories, the specimens are flown to Stockholm within twelve hours.

Unusual Operation by Stockholm Physician

Dr. Clarence Crafoord, chief of the Sabbatsberg Hospital in Stockholm, recently performed for the sixth time an operation for which he is receiving a good deal of recognition. He has operated on the aorta in cases of "coarctatio aortae" and has been extremely successful.

BRAZIL

(From Our Regular Correspondent)

Rio de Janeiro, Dec. 31, 1945.

Hyperthyroidism and Goiter

Dr. Mariano de Andrade and Dr. Raymundo Britto have published a review covering a ten year period during which they treated 900 patients with thyroid disease, of whom 563, or 62.5 per cent, had manifestations of hyperthyroidism. Predominant among the thyroid diseases without toxicity were puberty goiter (87 cases, or 9.7 per cent), the adenomas (72 cases, or 8.0 per cent) and nontoxic nodular goiter (59 cases, or 6.5 per cent). A simple analysis of the cases disclosed that 96.6 per cent of the patients with hyperthyroidism presented goiter, while toxic forms without definite enlargement of the thyroid occurred in 3.4 per cent. Among the patients with toxic goiter the diffuse form was present in more than half (53.7 per cent), or 51.7 per cent of all the patients presenting hyperthyroidism. In the class of diffuse toxic goiter the authors included exophthalmic goiter (Basedow-Graves syndrome). Of 293 cases which were specially studied 170, or 58.0 per cent, showed all degrees of exophthalmos. The exophthalmos was bilateral in 162 patients (95.3 per cent), unilateral in the left eye in 6 (3.5 per cent) and in the right eye in 2 (1.2 per cent). The number of cases of hyperthyroidism was unevenly divided between the two sexes, 84.9 per cent in women, when all the forms of the disease were taken into consideration. Predominance in women was still higher (94.7 per cent) when thyrotoxicosis was considered alone. Andrade and Britto emphasized the point that the color distribution was very significant, since 81.9 per cent of the patients were white. However this does not allow for the difference in the distribution of color in the population, from which the patients may represent a peculiar sample. The largest number of patients were from 20 to 40 years of age, particularly between ages 25 and 35. Hyperthyroidism was not common before age 10 or after 60. Of the 900 patients studied 377, or 41.9 per cent, were treated surgically; 375, or 41.7 per cent, were treated medically; 6, or 0.7 per cent, were treated by x-rays, and 142, or 15.8 per cent, refused any treatment. The deaths were 13 in all, 9 of them after operations.

In another paper, A. A. Sampaio presented the results of the goiter survey which he made over a period of several years in a sample of sixteen counties of the state of São Paulo, especially in the school population. He found a total of 16,843 cases of the disease. There are extensive districts where the incidence is between 20 and 30 per cent, but particular areas in the high plateau region have an incidence of 70 and even 80 per cent. In a general manner the incidence steadily increases with age. The disease in the state of São Paulo has decreased in the last hundred years. The author believe that this is due to improvement in health conditions of the general population which accompanied the improvement in economic conditions. Sampaio points out that the extension and the intensity of the disease in many counties of the state should lead the authorities to an attempt to remedy this situation.

A. L. Pereira published the results of an experiment carried out during the last two years with the use of iodized table salt in areas of endemic goiter in the state of Minas Gerais. He says that, from a general average of 44 per cent, the incidence decreased to an average of 27 per cent.

Special Medical Courses

A series of lectures under the general title of "Recent Progress of American Medicine," sponsored by Dr. Beatrice Berle, wife of the United States ambassador to Brazil, has been organized at the center of medical studies of the Misericordia Hospital of Rio de Janeiro. These lectures are being delivered by Brazilian alumni of American universities. The course, to be completed during the month of December, includes lectures on recent advances in the serology and treatment of syphilis (Dr. A. Severo da Costa), cardiology (Dr. A. Araujo Villela), nutrition (Dr. Benjamin Albagli), gastroenterology (Dr. E. Figueiredo Mendes), orthopedic surgery (Dr. Henrique de Gois), urology (Dr. Paulo de Albuquerque), anesthesia (Dr. Oscar V. Ribeiro), pediatrics (Dr. Luis T. Barbosa), otorhinolaryngology (Dr. Waldemar Salem) and allergy (Dr. Ulysses F. Alves).

Dr. Flavio A. de Souza, associate professor of clinical psychiatry at the University of Rio de Janeiro, is now giving a special course on the principal subjects of psychosomatic medicine. Dr. Mira y Lopez of Barcelona, Spain, will deliver a lecture included in the course on the subject "Psychosomatic Medicine versus Integral Medicine."

Personal

Dr. Raul Leitão da Cunha, professor at the School of Medicine of the University of Rio de Janeiro and president of the university for several years, has been appointed minister of health, succeeding Hon. Gustavo Capanema, who held this post for more than ten years during the administration of President Getulio Vargas.

Dr. Hugo Pinheiro Guimarães has been appointed dean of the Medical School of the University of Rio de Janeiro, succeeding Dr. Froes da Fonseca.

Dr. Roberval C. de Farias has been appointed director general of the National Department of Health, succeeding Dr. J. de Barros Barreto, who had held the post since 1942.

Dr. J. Velho da Silva has been appointed secretary general of health of the Federal District (city of Rio de Janeiro), succeeding Dr. A. de Oliveira Lima, who had occupied this post since March of last year. The secretary of health has under him the Department of Hospitals and the Department of Public Health.

Marriages

John Lippincott Guerrant, Callaway, Va., to Miss Laura Elizabeth Bailey of McConnellville, S. C., in Charlottesville, November 30.

Thomas Joseph Murphy, Columbus, Ohio, to Miss Elaine McKinney of Waverly, Ala., at Rossville, Ga., October 13.

Marion Calvin Martin, Miami, Fla., to Mrs. Elizabeth Purse Clinton of Chattanooga, Tenn., December 13.

Alva Richard Taylor, Fort Lauderdale, Fla., to Dr. Garland Marian Johnson of Jackson, Tenn., September 29.

Paul Ward Robinett, Huntington, W. Va., to Miss Shirley Harwood Kersey of Richmond, Va., December 31.

Karl Crawford Jonas, Marion, N. C., to Mrs. Bonnie Babcock Brooks in Philadelphia, November 24.

Robert E. Stowell, St. Louis, to Miss Eva Mae Chambers in Jacksonville, Ill., December 1.

James J. Ledgard Jr., Maynard, Mass., to Miss Dana Lee Catt of Brooklyn, October 4.

Anne Louise Hendricks, Fort Lauderdale, Fla., to Mr. Robert McCurdy recently.

Jack M. Levin, Atlanta, Ga., to Miss Adele Segall of Miami, Fla., October 18.

Correspondence

CORONARY OCCLUSION AND THROMBOSIS AND MYOCARDIAL INFARCTION

To the Editor:—The discussion by Blumgart, Boas and others and by Master regarding the effect of effort on the incidence of coronary occlusion, coronary thrombosis and myocardial infarction shows the need of more precise use of these terms.

Blumgart (THE JOURNAL, July 14, 1945, p. 775) contributes a report on the relation of effort to "attacks" of acute myocardial infarction as he saw it in army training camps. Acute myocardial infarction does not occur as an "attack" per se but is a result of sudden deprivation of an area of heart muscle of its blood supply by occlusion of the main supplying artery or a sufficient number of its branches. Arteriosclerosis is generally the underlying cause of the narrowing of the artery, but this is never a sudden process. The occlusion caused by atheromatous intimal thickening may reach a point where a slight increase in myocardial effort will result in cardiac collapse. This, however, does not necessarily include anemic infarction unless a state of anemia exists in the area and for a sufficient time. This can be accomplished quickly by the addition of thrombotic elements to an atheroma, completely sealing off an already greatly narrowed lumen. Sudden hemorrhage into an atheroma during the systolic rise involved in sudden severe effort might conceivably result in complete arterial block, but in the course of careful gross and microscopic study of infarcted hearts in a period of twenty-five years this intra-atheromatous hemorrhage has rarely impressed me as sufficient to produce complete arterial occlusion.

"Coronary thrombosis" has a fairly definite meaning to the internist, with its suddenness, the severe pain, the obvious collapse of ventricular power, and in addition the electrocardiographic picture. To the pathologist there is no thrombosis unless an actual thrombus is demonstrable. How long does it take for a thrombus to form in an organ like the heart which is shaking itself in systole and diastole 100 to 150 times a minute during strenuous work or exercise? No one knows. Presumably it will not develop at all when (1) the arteries are normal or (2) the current of the blood stream is not excessively slowed. However, assuming that an atheroma has been formed in the course of time near the base of a main stem coronary artery and following extension of the degeneration so as to injure the intima a partially occluding thrombus has been laid down at this point, what might be the effect of sudden severe effort on the ability of the thrombus to stay put? I think I have proved satisfactorily in a few cases that such a thrombus has been torn loose at the time of the exertion and forced distally about 0.5 cm. to occlude completely the anterior descending branch of the left coronary artery, resulting in anemic infarction. This proof of the relation of exertion to myocardial necrosis is rarely obtained because of a common technical error in postmortem dissection of the heart. The usual insertion of a scissors blade into the mouth of an artery and cutting distally will disclose the thrombus but often at a point beyond the former site of the clot, because it is apt to be pushed forward out of its original position. Careful removal of the "roof" of the artery by lifting a longitudinal wedge will disclose the clot in situ vero. I described this method in the *Transactions of the American Clinical and Climatological Association* for 1932 in an article by L. W. Gorham and others.

It is of great immediate importance that medical experts show more unanimity on such a basic matter as the effect of exertion on the arteriosclerotic heart. Compensation courts daily hear statements that a claimant while lifting a heavy object felt a severe pain in his midchest, collapsed and in an hour was dead, with autopsy showing cardiac infarction, old atheromatous arterial narrowing and fresh coronary thrombosis. The expert on the opposite side may swear that there is no relation between the heavy lifting and the cardiac collapse. The referee is more inclined to accept a causal relationship between the exertion and the fatality and, in my opinion, is more apt to be right than wrong. Rest and not exertion is the basic component of cardiac therapy. While compensation courts with the greatest self assurance have settled to their own satisfaction the cause of cancer as related to trauma, I think they are on sound ground generally in insisting that excessive exertion has a bad effect on the arteriosclerotic heart. The fact that coronary occlusion can occur during sleep (when the systolic pressure is normally at its lowest ebb) does not in the least invalidate this principle.

The term "coronary occlusion" as the internist has come to employ it does not convey any idea of its cause. An artery can be occluded in many ways, for instance by intimal sclerosis or atheroma, which requires years or at least months, by thrombosis, which can be relatively sudden, or by embolism, which is the most sudden of all. Master assumes that coronary occlusion can be caused only by arteriosclerosis, but he is contradictory when he speaks of ". . . the hundreds of cases that the cardiologist has had in which coronary occlusion transpired during sleep, rest or mild and usual activity." (THE JOURNAL, Sept. 1, 1945, p. 90). It takes many sleeps indeed to produce arteriosclerotic occlusion.

VICTOR C. JACOBSEN, M.D., Troy, N. Y.

CAFFEINE WITH SODIUM BENZOATE FOR ACUTE ALCOHOLISM

To the Editor:—At the psychiatric division of Professors Wagner Jauregg and Poetzel in Vienna in 1937 and at the admitting room of St. Joseph Hospital from 1940 to 1945 I had the opportunity of studying alcoholism in its various manifestations. Ordinarily we used to resort to paraldehyde, restraints and seclusions for the disturbed resistive violent alcoholic addict, and we used to give various stimulants for the patient in an alcoholic coma. For the last two years we have not admitted acute alcoholic addicts to the wards of St. Joseph Hospital in Paterson, N. J., except patients in deep coma complicated by respiratory failure.

Immediately after arrival in the emergency room every alcoholic addict either violent or in coma received 15 grains (1 Gm.) of caffeine with sodium benzoate intravenously, the rate of injection being about ten seconds. The administration of caffeine with sodium benzoate to these patients was followed by improvement in the clinical state in forty-five seconds. Such improvement manifested itself in the arousal of the comatose patients in forty-five seconds and sedation of the excited group due to general stimulation of the central nervous system and inhibitory centers.

FRITZ F. ADLER, M.D., Paterson, N. J.

AMYELOIDEMIA VS. AGRANULOCYTOSIS

To the Editor:—Since the term "agranulocytosis" chosen by W. Schultz for the syndrome of diminished leukocytes in the blood means in its strict sense an increase in the nongranular leukocytes, it appears that a better term is necessary to designate this medical entity.

Neutropenia is displacing the term granulocytopenia, which may occur in a mild or severe form with angina. It may be wise for clarity to substitute the term amyeloidemia for agranulocytosis when it refers to a complete absence of the myeloid series of white cells in the blood. Since all the cells of the myeloid series are involved in this syndrome the coined terms of aneutremia or aneutrophilemia, signifying the absence of neutrophils in the blood, is not warranted.

The term amylemia, referring to the presence of hypothetical starch in the blood, appears in Stedman's Dictionary. The possible presence of amyloid in the blood, amyloidemia, is a similar potential word. These are distinguishable by spelling and pronunciation from amyeloidemia.

BERNARD SELIGMAN, M.D., Brooklyn.

Bureau of Investigation

CEASE AND DESIST ORDERS

Abstracts of Certain Federal Trade Commission Releases

The work of the Federal Trade Commission in helping to protect the public against misrepresentation or fraud in the medical as well as other fields, has been greatly extended by the provisions of the Wheeler-Lea Amendment to the Federal Trade Commission Act. The Food, Drug and Cosmetic Act of 1938 increased the Food and Drug Administration's control of the advertising claims and statements made on the label of a medicine or on the carton or in the accompanying leaflet, whereas what might be termed collateral advertising, that which appears in circulars, newspapers and magazines and over the air, comes more actively under the purview of the Federal Trade Commission by virtue of the Wheeler-Lea Amendment.

THE JOURNAL has at various times commented on the activities of the Federal Trade Commission in this connection, even before the Wheeler-Lea Amendment gave it its added powers. In some cases the Commission may accept from the person or concern involved a stipulation that the objectionable practices or claims cited will be discontinued. In other cases the Commission issues what is known as a Cease and Desist Order, in which the individual, manufacturer or distributor cited is ordered to cease and desist from practices which have been declared objectionable. In some cases the claims cited have been discontinued by the firms several months (or even longer) before the issuance of the order. Abstracts of some of the orders issued in 1943, 1944 and 1945 follow in this form: name of product, name of distributor, date of issuance of complaint, date of issuance of Cease and Desist Order and terms of order.

Allmentone.—Thomas E. Collins, trading as Thomas E. Collins Company, San Francisco; complaint issued August 24, 1942; order issued Nov. 1, 1943. Order directed the respondent to cease representing that his product expels mucus from the body, affords relief for catarrhal conditions generally, aids in fortifying mucous membranes against infection, possesses any value in the treatment of inflammation of the mucous membranes, eliminates toxic substances or deposits from the body, or is a cure or remedy for colds The findings were that the preparation is composed of powdered wheat embryo, powdered dried skim milk and vegetable concentrates, and that though it may have some food value, it is wholly without effect as a therapeutic agent.

Cuproloid.—Charboy Products, Inc, Red Bank, N. J.; complaint issued May 7, 1942, order issued Jan 24, 1944 Order directed the concern to discontinue any advertisements which represented product as being of value in treatment of, or constituting a cure or remedy for pimples, acne, surface ulcers, burns, poison ivy, athlete's foot and some other skin disorders, or possessing sterilizing or healing properties, keeping the skin healthy, being approved by competent medical authorities or prescribed by the medical profession.

McFadden 3 Sisters Springs Mineral Waters.—Roy A. Whipple and Mrs. Ruth Carter Whipple, trading as McFadden 3 Sisters Springs, Hot Springs National Park, Ark; complaint issued April 17, 1943; order issued Dec. 7, 1943 Order directed the respondents, who reside in Winnetka, Ill, to discontinue advertisements representing that their waters or any other products of substantially similar composition will eliminate poisons from the system to any significant extent, or will be effective in removing excess acids and impurities through the kidneys and bladder, that the use of these waters will maintain a proper balance of minerals in the body or that any of the waters is a cure or remedy for the various ailments and diseases enumerated in the advertisements. These consisted of more than twenty, and included arthritis, neuritis, Bright's disease, diabetes, anemia, nervous prostration, high or low blood pressure, gallstones and sinusitis.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS
EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Board in Specialties were published in THE JOURNAL, Feb. 16, page 445.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Mar. 19 21. Sec. Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.

ALASKA: Juneau, March 5. Sec, Dr. W. M. Whitehead, Box 140, Juneau.

ARIZONA:* *Examination.* Phoenix, April 2 3 *Endorsement.* Phoenix, April 6 Sec, Dr. J. H. Patterson, 826 Security Bldg, Phoenix.

ARKANSAS:* *Medical* Little Rock, June 6 7. Sec, Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana *Eclectic.* Little Rock, June 6 Sec, Dr. C. H Young, 1415 Main St, Little Rock.

CALIFORNIA: *Written* Los Angeles, March 11-14. Sec, Dr. Frederick N. Scatena, 1020 N St, Sacramento 14.

COLORADO:* Denver, April 2 5. Final date for filing application is March 18. Sec., Dr. J. B Davis, 831 Republic Bldg, Denver.

CONNECTICUT.* *Medical Examination.* New Haven, March 12-13. *Endorsement* New Haven, March 26 Sec to the Board, Dr. Creighton Barker, 258 Church St, New Haven. *Homeopathic.* Derby, March 12 13. Sec, Dr Joseph H. Evans, 1488 Chapel St, New Haven.

DELAWARE: *Examination* Dover, April 9. *Reciprocity.* Dover, April 16. Sec, Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St, Dover.

DISTRICT OF COLUMBIA:* *Reciprocity.* Washington, March 11. Sec., Commission on Licensure, Dr G C. Ruhland, 6150 E. Municipal Bldg, Washington 1.

FLORIDA:* Jacksonville, June 24-25. Sec, Dr. Harold D. Van Schaik, 2736 S W. Seventh Ave, Miami 36

GEORGIA. Atlanta and Augusta, March 27-28 Sec, State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta 3

IDAHO. Boise, July 9. Dir., Bureau of Occupational Licenses, Miss Agnes Barnhart, 355 State Capitol Bldg, Boise.

ILLINOIS: *Examination.* Chicago, April 2-3. *Reciprocity.* Chicago, April 4 Supt of Registration, Department of Registration & Education, Mr. Philip Harman, Springfield.

INDIANA: Indianapolis, April 25 27. Sec, Board of Medical Registration & Examination, Dr. W. C. Moore, 301 State House, Indianapolis 4.

IOWA.* Iowa City, March 25 27. Dir., Division of Licensure & Registration, Mr. H. W. Grefe, Capitol Bldg, Des Moines 19.

KANSAS: Kansas City, March 12-13. Sec, Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St, Kansas City 10

KENTUCKY: Louisville, March 25-27. Sec, State Board of Health, Dr Philip E Blackerby, 620 S Third St, Louisville 2.

MAINE: Portland, March 12-13. Sec, Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.

MARYLAND: *Medical* Baltimore, March 19 22. Sec, Dr. J. T. O'Mara, 1215 Cathedral St, Baltimore 1. *Homeopathic.* Baltimore, June 18-19. Sec, Dr. J. A. Evans, 612 W. 40th St, Baltimore.

MASSACHUSETTS Boston, March 12 15. Sec, Board of Registration in Medicine, Dr. H. Q Gallupe, 413 F State House, Boston.

MICHIGAN:* Detroit, March 26 28 Sec, Board of Registration in Medicine, Dr. J. E McIntyre, 100 W. Allegan St, Lansing 8.

MISSISSIPPI. June Asst. Sec, State Board of Health, Dr. R. N. Whitfield, Jackson 113.

MISSOURI *Examination* St. Louis, Feb 25 27. Sec, State Board of Health, Dr. R. M. James, State Capitol Bldg, Jefferson City.

MONTANA: Helena, April 1-3 Sec, Dr. O. G Klein, First National Bank Bldg, Helena

NEBRASKA:* Omaha, March 25 27. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg, Lincoln 9

NEW JERSEY: Trenton, June 18-19. Sec., Dr. E. S. Hallinger, 28 W. State St, Trenton.

NEW MEXICO:* Santa Fe, April 8 9. Sec, Dr. LeGrand Ward, 141 Palace Ave, Santa Fe.

NEW YORK: Jan 28 31. Sec., Dr. Jacob L. Lochner, Education Bldg, Albany.

NORTH CAROLINA: Raleigh, March 25 28. Act. Sec, Mrs. Louise J. McNeill, 226 Hillsboro St, Raleigh

NORTH DAKOTA Grand Forks, July 2 5. Sec, Dr. G. M. Williamson, 4½ S. Third St, Grand Forks.

OHIO: *Examination* Columbus. March 19 22. Sec, Dr. H. M. Platter, 21 W. Broad St, Columbus.

OKLAHOMA:* Oklahoma City, March 23. Sec., Dr. J. D. Osborn Jr., Frederick.

PENNSYLVANIA: Philadelphia and Pittsburgh, April. Act. Sec, Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 351 Education Building, Harrisburg.

RHODE ISLAND: Providence, April 4 5 Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg, Providence

SOUTH CAROLINA: Columbia, Feb. 24 26. Sec, Dr. N. B. Heyward, 1329 Blanding St, Columbia.

SOUTH DAKOTA:* Pierre, July 16 17. Sec, Medical Licensure, State Board of Health, Dr. Gilbert Cottam, Capitol Bldg, Pierre.

TENNESSEE:* Memphis and Nashville, March 27-29. Sec., Dr. H. W. Qualls, 130 Madison Ave, Memphis 3.

TEXAS: Austin, March 27 29. Sec., Dr. T. J. Crowe, 918 20 Texas Bank Bldg, Dallas 2

Vermont: Burlington, March or April. Sec., Dr. F. J. Lawliss, Richford.

Virginia: * Richmond, March 25-28. Sec., Dr. J. W. Preston, 803 Medical Arts Bldg., Roanoke.

Washington: * Seattle, July 11-12. Sec., Department of Licenses, Miss Nell Adams, Olympia.

West Virginia: Charleston, April 1-3. Commissioner, Public Health Council, John E. Offner, State Capitol, Charleston 5.

Wyoming: Cheyenne, Feb. 4. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Colorado: Denver, March 6-7. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

District of Columbia: Washington, April 22-23. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington 1.

Florida: Gainesville, June 4. Final date for filing application is May 20. Sec. Dr. J. F. Conn, John B. Stetson University, DeLand.

Iowa: Des Moines, April 9. Dir., Division of Licensure & Registration, H. W. Grefe, Capitol Bldg., Des Moines 19.

Michigan: Ann Arbor and Detroit, May 10-11. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

Minnesota: Minneapolis, April 2-3. Sec., Dr. Raymond N. Bieter, 126 Millard Hall, University of Minnesota, Minneapolis 14.

Nebraska: Omaha, May 7-8. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln 9.

Oregon: Portland, March 2. Sec., Board of Higher Education, Mr. C. D. Byrne, University of Oregon, Eugene.

Rhode Island: Providence, Feb. 13. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

South Dakota: Vermillion, March 13-14. Sec., Dr. G. M. Evans, Yankton.

Tennessee: Memphis and Nashville, March 25-26. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

Wisconsin: Madison, April 6. Prof. R. N. Bauer, 152 W. Wisconsin Ave., Milwaukee 3.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Chiropodists: Authorized to Use Narcotics as Local Anesthetic.—The plaintiffs commenced the present suit, an original mandamus action, in the Supreme Court of Michigan to compel the defendants, Michigan Board of Pharmacy and Director of Drugs and Drug Stores, to issue them narcotic permits.

In 1943, prior to which chiropodists were issued narcotic permits, the attorney general of Michigan issued an opinion to the Director of Drugs and Drug Stores to the effect that there was nothing in the chiropody act giving chiropodists any right to use narcotics; that chiropodists were permitted to use "only local anesthetics such as butaline or 2 per cent novocain, evidently claimed to be non-narcotic." Plaintiffs, licensed chiropodists, accordingly filed suit in the federal court to restrain the collector of internal revenue from refusing to accept their applications for reregistration under the Harrison Narcotic Act and to compel the collector to issue special stamps as evidence of such reregistration. The district court defined local anesthetics as

> . . . anaesthetics that when locally applied produce an absence of sensation in the organ or tissue treated. Narcotics, including cocaine, other derivatives of coca leaves, and similar compounds when properly applied produce such an effect, and are used as local anaesthetics.

The district court also pointed out that the Michigan law is similar to the uniform narcotic act, adopted by a number of states, and that the attorneys general of at least six of those states have ruled that chiropodists are entitled to use narcotics thereunder. It entered a decree in favor of the plaintiffs, but this decree was reversed by the circuit court of appeals on the ground that a federal court should not undertake the interpretation of a local law without some views of the local judges familiar with the trends of local law. The present suit was then instituted.

Section 2 of the Michigan chiropody act provides that a certificate of qualification or license "shall not authorize chiropodists to amputate the human foot or toes, or to use or administer anaesthetics other than local." Section 1 of the uniform narcotic drug act, adopted by Michigan in 1937, defines a physician as "a licensed practitioner of medicine or osteopathy as defined by law in this state and any other person authorized by law to treat sick and injured human beings in this state and to use narcotic drugs in connection with such treatment."

The defendants contended that since chiropodists are not mentioned in the narcotic act, which specifically mentions physicians, it was the intention of the legislature to exclude them. This contention, said the Supreme Court, overlooks the broader definition of physician in the act, namely, ". . . any other person authorized by law to treat sick and injured human beings in this state and to use narcotic drugs in connection with such treatment." Chiropodists, the court continued, are called on to perform many operations such as removal of ingrowing nails, growths and callosities on the foot and manipulation of the bones of the foot, all of which would cause tremendous pain to the patient were anesthetics not used. The narcotic act and the chiropody act, said the court, taken together, indicate that a chiropodist may use local anesthetics. Local anesthesia is "that which is confined to one limited part of the body." It is the use of local anesthesia to which a chiropodist is restricted, concluded the court, not the agency employed to bring about such anesthesia. Accordingly judgment was entered in favor of the plaintiffs.—*Fowler v. Michigan Board of Pharmacy, 20 N. W. (2d) 680 (Mich., 1945).*

Medical Practice Acts: Revocation of License for Violation of Harrison Narcotic Act.—The plaintiff, having pleaded guilty, in the federal district court, to a violation of the Harrison Narcotic Act, was cited to appear before the defendant, Board of Medical Examiners, to show cause why his license to practice medicine and surgery should not be revoked for acts of unprofessional conduct. After a hearing, the defendant revoked the plaintiff's license. Subsequently the plaintiff filed suit in the superior court to show cause why the board's action should not be set aside. The superior court sustained the board, and the plaintiff appealed to the Supreme Court of Arizona.

The plaintiff first contended that the Board of Medical Examiners had no jurisdiction to revoke his license. He argued that the present board was created by legislation in 1935 and that it possessed only the powers set forth in the act creating it rather than the powers of the old board created in 1928 but dissolved by the 1935 enactment. The effect of the 1935 law, insisted the plaintiff, was to drop the provisions of prior laws, including the power of the board to revoke or cancel licenses. The Supreme Court quoted with approval from its decision in *Marlar* v. *Patterson*, 60 Ariz. 240, 135 P. (2d) 218, in which a similar contention was raised, as follows:

> The Medical Practice Act was amended in 1935, chapter 99, session laws of that year, and we are unable to see why the plaintiff claims that they made the board of examiners merely a board of registration. The first change made deals with the makeup of the board and the length of term each shall serve, and the second made the practice of medicine without having a valid recorded certificate a felony instead of a misdemeanor. Then there was added a section providing that every person practicing medicine, surgery or osteopathy in the state shall renew his license each year by the payment of $3 on or before January 1. Clearly these amendments had no effect whatever on the other provisions of the Medical Practice Act.

Under that decision the Supreme Court held that provisions not covered by the 1935 amendment remained in effect.

The Arizona code (Sec. 67-1106, A. C. A. 1939) provides that

> . . . Whenever a holder of a certificate is guilty of unprofessional conduct, or whenever a certificate has been procured by fraud or misrepresentation, or issued by mistake, the board shall revoke the same after citation and hearing thereon. . . .
>
> The words "unprofessional conduct" shall include . . . conviction of any offense involving moral turpitude, . . .

The Supreme Court held, as it had in *Du Vall* v. *Board of Medical Examiners of Arizona*, 49 Ariz. 329, 66 P. (2d) 1026, that a conviction under the Harrison Narcotic Act negatives any and all presumptions of good faith on the part of the defendant and brands him as a person of bad moral character, unfit to practice medicine. On the basis of these cases, therefore, the judgment in favor of the Board of Medical Examiners was affirmed.—*Garlington v. Smith, 163 P. (2d) 685 (Ariz., 1945).*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

50:471-594 (Nov.) 1945. Partial Index

Placental Senescence and Onset of Labor. H. S. Mandel, S. Graff and Ada M. Graff.—p. 471.
*Treatment of Carcinoma of Cervix by Interstitial Radium Needles at Rhode Island Hospital: Supplemental Report. G. W. Waterman and R. DiLeone.—p. 482.
Complete Abdominal Hysterectomy: Impressions Based on 135 Cases. R. W. Mohler and E. H. Bishop.—p. 489.
Isometric Method of X-Ray Pelvimetry as Routine Procedure. C. M. McLane.—p. 495.
*Androgen Therapy of Menopausal Symptoms in Cancer Patients. S. B. Gusberg.—p. 502.
Lactobacillus Therapy in Vaginitis Due to Trichomonas. L. Brady and R. D. Reid.—p. 509.
Benzyl Penicillin—Clinical Toxicity and Efficacy by Mouth in Impetigo in the Newborn Infant: Preliminary Report. T. O. Gamble, L. C. Miller and M. L. Tainter.—p. 514.
*Nausea of Pregnancy Treated by Forced Hydration. W. C. Eller and J H. Randall.—p. 518.
Suppurating Fibromyomas: Report of Case, with Review of Literature. I. Miller.—p. 522.
Paracervical Anesthesia for Relief of Labor Pains. S. S. Rosenfeld. —p. 527.
Nonclotting Component of Postpartum Blood. E. Greenberg.—p. 532.
Primary Ovarian Pregnancy. J. F. Norton and N. M. Alter.—p. 535.
Arrhenoblastoma. D. C. Daughtry.—p. 539.
Edema of Uvula and Edema of Glottis—Reaction to Demerol-Scopolamine Analgesia. M. Steinberg.—p. 542.
Phantom Limb Syndrome Complicating Pregnancy and Puerperium. G. A. Williams—p. 546.
Erythroblastosis Fetalis in Twin Pregnancy. M. E. Aaberg and C. Roby. —p. 548.
*Reactivation of Endometriosis by Stilbestrol Therapy. R. L. Faulkner and E. A. Riemenschneider.—p. 560.

Interstitial Radium Needles for Carcinoma of Cervix.—Waterman and DiLeone report ten year survival rates in 309 cases treated at the Gynecologic Tumor Clinic at the Rhode Island Hospital, seen from 1926 through 1933 and previously reported for five year survivals. They add a new series of 198 cases which passed through the clinic from 1934 through 1938 and review the total of 507 cases, 1926 through 1938. The five and ten year survival rates for 309 cases for stage 1 carcinoma were 73 and 46 per cent respectively; for stage 2 they were 54 and 39 per cent respectively; for stage 3 they were 32 and 21 per cent; in patients with stage 4 carcinoma there were neither five nor ten year survivals. The survival rates for all stages was 35.7 per cent after five years and 24.5 per cent after ten years. For the new series of 198 cases the relative five year survival rate was 36.7 per,cent. In 1933 the use of high voltage x-rays had been instituted as part of the treatment. It soon became evident that severe reactions were occurring. A better spacing of the x-ray and radium treatment seems to have corrected this fault fairly well, so that in the years 1936 to 1938 inclusive the five year results are shown as 39.3 per cent absolute and 44.9 per cent relative survivals. The total of 507 cases had a relative five year survival rate of 36 per cent. A review of the survival rates by age groups shows that for those 45 and under the five year survival rate was 38 per cent, for those 46 and over 29.5 per cent. The good results previously reported with the use of interstitial long platinum needles of low intensity are maintained in this series and are definitely improved with the added use of x-ray therapy in the last 109 cases.

Androgen Therapy of Menopausal Symptoms in Cancer Patients.—Gusberg administered androgen to a selected group of 24 patients who had been subjected to surgery, irradiation or both for neoplastic disease or dysfunctional bleeding from the reproductive tract. The patients were given 20 mg. of methyl testosterone by mouth daily for four weeks, then 10 mg. daily for two weeks thereafter. This therapy was usually adequate to control symptoms. The vasomotor symptom of the menopause disappeared in 23 of the 24 patients. Some benefit was noted in all patients who received an adequate course of treatment. Of 12 patients who had had previous diethylstilbestrol therapy, 10 were benefited to a greater degree by the androgens. The other 2 had taken diethylstilbestrol for years and the habit was difficult to break. The percentage of menopausal women who require endocrine treatment is small; the majority of patients undergoing either a spontaneous or an artificial menopause require no treatment.

Nausea of Pregnancy Treated by Forced Hydration.—Eller and Randall employed forced hydration for the nausea of pregnancy, which they believe results from the high concentration of chorionic gonadotropin present during the first trimester. Increased elimination by the kidneys should lower this concentration below a theoretical "nausea threshold," with resultant relief of symptoms. As soon as they notice nausea the women are advised to begin drinking 4 glasses of water between breakfast and lunch, 5 glasses between lunch and supper and 6 glasses between supper and bedtime. This hydration will require getting up at night, and a glass of water should be taken each time the patient gets up. If water is vomited, the same amount should be immediately taken again. Hot water or salt water may be retained more easily. Of 68 pregnant women with symptoms of nausea and/or vomiting subjected to this treatment 32 were relieved within four days, another 10 in seven days. In the remaining 26 cases the results varied from fair to very poor.

Reactivation of Endometriosis by Diethylstilbestrol Therapy.—Faulkner and Riemenschneider report that a woman aged 36, who had severe periodic bleeding from endometriosis of the bowel requiring over seventy transfusions, was finally treated by surgical castration and was well until given diethylstilbestrol for menopausal symptoms, when severe recurrence of the bleeding took place. Permanent recovery followed discontinuance of this therapy.

Am. J. of Orthodontics and Oral Surgery, St. Louis

31:541-696 (Nov.) 1945

Albers-Schönberg Disease: 2 Cases. G. R. Winter.—p. 637.
Teratoid Parasites of Mouth (Episphenoids, Epipalati [Epurani], Epignathi). W. E. Ehrich.—p. 650.
Anti-Infectious Properties of Saliva—A Review. J. L. T. Appleton. —p. 659.
Two Cases of Sublingual Dermoid and a Case of Protrusion of Mandible. R. H. Ivy and L. Curtis.—p. 666.
Analysis of Mechanics of Periodontal Membrane. A. B. Gabel.—p. 675.
Hematologic Findings in Fusospirochetal Stomatitis. L. W. Burket. —p. 681.
Mandibular Lesion as First Evidence of Multiple Myeloma. T. M. Meloy, J. H. Gunter and D. A. Sampson.—p. 685.
Treatment of Fusospirochetal and Streptococcal Infections by Topical Application of Penicillin. S. L. Rosenthal.—p. 690.
*Unilateral Lacrimation Associated with Chewing. I. B. Bender.—p. 692.
Stomatitis Due to Chewing Leaves of Poison Ivy: Report of a Case. R. K. Sassaman.—p. 695.

Unilateral Lacrimation During Chewing.—Bender reports a case in which stimulation of the anterior palatine pad area only brought about congestion, lacrimation and pain. The effects were best produced by rubbing with a finger or denture pressure through food mastication. While the symptoms could be produced by reading small print and blowing the nose, the dental complaint was the more important. The pad area was definitely localized as the trigger point by the fact that unilateral biting and movements of the muscles of mastication did not reproduce the syndrome. When there is independent biting either on the right or on the left side there is no compression or rubbing on the pad area. With normal chewing the force of mastication produces a pressure because of the closeness of adaptation of the dentures on the yielding mucosal tissues. This case differs from those reported in the literature in that, associated with lacrimation, there was also congestion and pain. Whether this can be attributed to a stimulation of both the autonomic and the sensory systems is difficult to say.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

29:587-686 (Nov.) 1945

Retardation and Suppression of Experimental Early Syphilis by Small Doses of Penicillin Comparable to Those Used in Treatment of Gonorrhea. H. J. Magnuson and H. Eagle.—p. 587.
Studies on Liver Function: I. Liver Function in Early Syphilis Before and During Massive Arsenotherapy. M. M. Hoffman and F. Kalz.—p. 596.
Report of Chancre Developing in Patient with Cardiovascular Syphilis. E. W. Thomas, Gertrude Wexler and M. Schur.—p. 604.
Treatment of Granuloma Inguinale with Anthiomaline: Report of Case with Extragenital Lesion. L. C. Goldberg.—p. 608.
Lymphogranuloma Venereum: Diagnostic Aids: I. Formol-Gel Test. F. C. Combes, O. Canizares and S. Landy.—p. 611.
Inguinal Lymphogranuloma Venereum in Male: Study of 750 Consecutive Cases from Panama. H. A. Tucker.—p. 619.
In Vitro Action of Penicillin on Hemophilus Ducreyi. T. Tung and C. N. Frazier.—p. 629.
Studies on Chancroid: II. Efficiency of Cultural Method of Diagnosis. P. B. Beeson and A. Heyman.—p. 633.
Effect of Respiratory Sulfadiazine Prophylactic Program on Incidence of Sulfonamide Resistant Gonorrhea. R. H. Abrahamson.—p. 641.
Accelerated Schedule for Treatment of Gonorrhea with Penicillin on Outpatient Basis. F. G. Gillick and B. D. Chinn.—p. 644.
Contact Education Interview: Its Functions, Principles and Technics in Venereal Disease Contact Investigation. H. Ennes Jr. and T. G. Bennett.—p. 647.

American Journal of Tropical Medicine, Baltimore

25:379-446 (Sept.) 1945

Report of Attack of Blackwater Fever Subsequent to Induced Malaria. S. F. Kitchen and G. G. Sadler.—p. 379.
Douroucouli (Aotus) in Laboratory Cycles of Yellow Fever. M. Bates and M. Roca-Garcia.—p. 385.
Specificity of Toxic Factors Associated with Epidemic and Murine Strains of Typhus Rickettsiae. H. L. Hamilton.—p. 391.
Dengue-like Fever on Isthmus of Panama. L. M. Fairchild.—p. 397.
*Chemotherapy of Human Filariasis by Administration of Neostibosan: Second Report. J. T. Culbertson, H. M. Rose and J. Oliver-Gonzalez.—p. 403.
Hyperendemicity of Schistosomiasis Japonica on Leyte Island, P. I. F. Bang, M. S. Ferguson, N G. Hairston and O. H. Graham.—p. 407.
Transfusions of Red Cells in Malaria: Experimental Study in Ducks. R. H. Rigdon and N. B. Varnadoe.—p. 409.
The Rh Factor in Blackwater Fever: Preliminary Note. D. C. A. Butts.—p. 417.
Simultaneous Vaccination Against Bacillary Dysentery and Cholera with Toxoid Vaccine. O. Felsenfeld and Viola M. Young.—p. 421.
Pneumonias in Panama: Study of 500 Consecutive Cases. I. L. Applebaum and J. Shrager.—p. 423.
*Risk of Attack in Leprosy in Relation to Age at Exposure. J. A. Doull, R. S. Guinto, J. N. Rodriguez and H. Bancroft.—p. 435.
Treatment of Lambliasis with Acranil. D. A. Berberian.—p. 441.

Chemotherapy of Human Filariasis with Neostibosan.—Thirty native Puerto Ricans infected with Wuchereria bancrofti were treated with neostibosan for from thirty-three to forty-eight days. All patients were given three injections of neostibosan on alternate days, the first usually containing 50 mg., the second 100 or 150 mg. and the third 300 mg. of the drug. Thereafter 300 mg. of the drug was given in single doses daily or on alternate days. Culbertson and his co-workers report that after twelve months 13 of the patients were free from circulating microfilariae and 5 others had lost from 87 to 99 per cent of their embryos, compared with the number in the blood before treatment. The 12 remaining patients showed little promise of eventual eradication of their infections after observation for nine months. Of 15 control untreated patients infected with Wuchereria bancrofti, all remained infected for fourteen months of observation. In this interval 12 showed an overall increase and 3 showed a decrease in the number of circulating microfilariae. Among the treated patients, some of whom had been free from microfilariae for twelve months, none presented untoward symptoms referable to treatment. At the end of the course of therapy little or no change had occurred in microfilaria levels of the patients. The simplest explanation for this slow loss of microfilariae is that the neostibosan does not act directly on the microfilariae but acts chiefly on the adult parasites. As a result of the death of the adult worms, the production of embryos ceases.

Leprosy in Relation to Age at Exposure.—Doull and his co-workers studied 1,520 individuals living in the province of Cebu, Philippine Islands, and exposed in the household to lepromatous leprosy. There is a clear relationship between age at time of exposure and the risk of developing lepromatous leprosy. It is highest for those exposed before the age of 5 years, decreasing progressively as the age at time of exposure increases. This is true for both males and females. The ratio of the incidence rates for males and females, for those exposed before 5 years of age, varies from 4.7:1 as rates in the age group 5 to 10 years to 1.4:1 for those 20 years and over. The average interval between exposure and development of lepromatous leprosy was 10.5 years for those exposed under 10 years of age but only six years for those exposed after the age of 10 years.

American Review of Tuberculosis, New York

52:355-448 (Nov.) 1945

Indications for Intrapleural Pneumolysis: Review of 567 Thoracoscopic Examinations. H. A. Jones.—p. 355.
Diaphragmatic Paralysis and Pneumoperitoneum: Therapeutic Observations in White Patients. H. E. Crow and F. C. Whelchel.—p. 367.
Pneumoperitoneum and Diaphragmatic Paralysis: Therapeutic Observations in 110 Negroes. N. L. Anderson and W. D. Winn.—p. 380.
Tuberculosis in Children: Comparison Between Postmortem Material from Buffalo, New York and Santiago, Chile. J. Schwarz.—p. 392.
Degree of Tuberculin Sensitivity: Its Significance in Tuberculous Patients. R. W. Clarke.—p. 424.
Streptomycin in Experimental Tuberculosis: Its Effect on Tuberculous Infections in Mice Produced by M. Tuberculosis var. Hominis. G. P. Youmans and J. C. McCarter.—p. 432.

Annals of Surgery, Philadelphia

122:745-904 (Nov.) 1945

*Study of Shock in Battle Casualties: Measurements of Blood Volume Changes Occurring in Response to Therapy. C. P. Emerson Jr. and R. V. Ebert.—p. 745.
Comparative Study of 100 Fractures of Shaft of Femur in Which One Half Were Treated with Penicillin. S. A. Collom Jr. and W. M. Ewing.—p. 773.
Thoracoabdominal Injuries: Report of 29 Operated Cases. R. H. Betts.—p. 793.
Anesthesia for Men Wounded in Battle. H. K. Beecher.—p. 807.
*Mucoepidermoid Tumors of Salivary Glands. F. W. Stewart, F. W. Foote and W. F. Becker.—p. 820.
Regional Enteritis. H. L. Pugh.—p. 845.
Second Five Year Period Experience in Total Thyroidectomy. A. E. Hertzler.—p. 862.
Ainhum (Dactylolysis Spontanea): Report of 2 Cases from Illinois. A. M. Vaughn, J. W. Howser and G. Shropshear.—p. 868.
Observations on Surgical Treatment of Hernia. W. W. MacGregor.—p. 878.
Use of Heterogenous Fascial Grafts in Radical Operation for Herniae. J. Chandy.—p. 885.
Renal Decapsulation for Transfusion Oliguria. J. H. Lyons and S. L. Raines.—p 894.
Use of Fluorescent Wheals in Determining Extent and Degree of Peripheral Vascular Insufficiency: Further Observations. J. L. Neller.—p. 898.

Shock in Battle Casualties.—Emerson and Ebert report studies on 112 battle casualties admitted to a field hospital with serious abdominal, chest or extremity wounds. Fifty per cent of these patients were in severe shock. The arterial blood pressure was found to provide the most reliable index of blood volume deficiency. Patients with initial systolic pressures below 85 mm. of mercury were found to have oligemia; all patients with this degree of hypotension had a diminution in blood volume that exceeded 25 per cent. A normal hematocrit reading or the demonstration of a mild anemia within a few hours after injury does not mean that severe loss of blood has not occurred. Anemia was produced by the administration of plasma to patients with severe oligemia. The majority of patients presented no evidence of an excessive loss of plasma in proportion to red cells; in a few cases with severe abdominal wounds there was demonstrated a disproportionate plasma loss, which resulted in a mild degree of erythroconcentration. Hemorrhage appeared to have been most severe in patients with extremity wounds and least severe in patients with uncomplicated chest wounds. Blood volume measurements performed preoperatively and postoperatively revealed that the average loss in 3 cases subjected to open thoracotomy was 600 cc. of blood; in 5 cases of abdominal surgery the average loss was 2,200 cc. Serial determinations of the blood volume indicated that hemorrhage occurred during the course of transfusion therapy in 11 of 23 patients studied. Plasma protein measurements before and after the injection of blood diluted with equal volumes of preservative solution indicate that retention of the latter in the blood stream is transient and of insufficient degree to produce significant hemodilution. The mortality incidence of all patients admitted in severe shock was 32 per cent; of those whose arterial pressure on admission exceeded 85 mm. of mercury, 11 per cent died within a similar period, which included the first postoperative day. The majority of deaths were attributable to penetrating abdominal wounds. Cases are described in which the clinical signs of shock were unrelieved by therapy, despite complete restoration of the blood volume to normal. The factors operative in the production of "irreversible shock" included severe infection, lesions involving the central nervous system, anoxic anoxia due to pulmonary damage and long persisting combination of anemia, oligemia and hypotension, with terminal signs of myocardial insufficiency.

Mucoepidermoid Tumors of Salivary Glands.—Stewart and his associates observed a group of salivary gland tumors differing structurally from tumors primary to these locations. They estimate the incidence of these tumors at 5 per cent of all salivary gland tumors. The material for this analysis was obtained from the Memorial Hospital (New York) records of about 700 salivary gland tumors seen between 1928 and 1943. A total of 45 cases was found. The authors divide the tumors into two histologic varieties, which they refer to as benign and malignant, but they admit that it might be preferable to speak of a "relatively favorable" and a "highly unfavorable" group. The term "benign" is scarcely ever applicable in an absolute sense and as used here does not necessarily imply innocent behavior. It does mean that thus far metastasis has not been observed from such tumors. Epidermoid metaplasia is one of the main cytologic characteristics of both classes of mucoepidermoid tumors. Whereas the basal cells are the principal type involved in this transformation, there is evidence that both mucous cells and columnar cells may undergo similar changes. The benign form of tumor is most frequent in younger and the malignant form in older persons. The most important initial symptom in benign tumors was painless swelling, but this was an initial symptom also in 8 of the 19 malignant tumors. Surgical excision and irradiation were the treatments used in these tumors. The results were favorable in patients with benign tumors, but the survival rate of the patients with malignant tumors was poor.

Cancer Research, Baltimore

5:609-672 (Nov.) 1945

Dependence of Tumor Formation on Degree of Caloric Restriction. A. Tannenbaum.—p. 609.
Dependence of Tumor Formation on Composition of Calory Restricted Diet as Well as on Degree of Restriction. A. Tannenbaum.—p. 616.
Glyoxalase Activity of Liver from Rats Fed p-Dimethylaminoazobenzene. P. P. Cohen.—p. 626.
Glyoxalase Activity of Erythrocytes from Cancerous Rats and Human Subjects. P. P. Cohen and Eva K. Sober.—p. 631.
Biologic Assay of Carcinogens. D. E. Lea.—p. 633.
Certain Effects of Egg White and Biotin on the Carcinogenicity of p-Dimethylaminoazobenzene in Rats Fed Subprotective Level of Riboflavin. B. E. Kline, J. A. Miller and H. P. Rusch.—641.
Spontaneous Malignant Mixed Tumors of Rat, and Successful Transplantation and Separation of Both Components from Mammary Tumor. Wilhelmina F. Dunning, Maynie R. Curtis and M. E. Maun.—p. 644.
Development of Highly Malignant Tumor Strains from Naturally Occurring Avian Lymphomatosis. B. R. Burmester and C. O. Prickett. —p. 652.

Cincinnati Journal of Medicine

26:497-554 (Dec.) 1945

Treatment of Behavior Problems in Children. Othilda Krug-Brady. —p. 497.
Exotic Diseases in Returning Servicemen. W. M. Germain.—p. 515.

Diseases of Chest, Chicago

.**11**:497-708 (Nov.-Dec.) 1945

Roentgen Ray: Its Past and Future. R. H. Morgan and Ira Lewis. —p. 502.
Sgments of Lungs: Commentary on Investigation and Morbid Radiology. A. F. Foster-Carter and C. Hoyle.—p. 511.
Roentgen Treatment for Hodgkin's Disease and Lymphosarcoma of Chest. A. U. Desjardins.—p. 565.
Length and Width Changes in Pulmonary Arterial System of Rabbits in Passing from Stage of Expiration to That of Collapse as Revealed by Roentgenography. C. C. Macklin.—p. 590.
Lateral Projection of Chest. S. Brown.—p. 596.
Clinical Value of Angiocardiography. H. K. Taylor.—p. 624.
Bearers of Shadows. M. de Abreu.—p. 639.
Neurogenic Tumors at Pulmonary Apex. L. W. Paul.—p. 648.
Intrathoracic Metallic Foreign Bodies. C. L. H. Garland.—p. 662.

Endocrinology, Springfield, Ill.

37:301-388 (Nov.) 1945

Biochemical Effects of Injections of Sex Hormones into Castrated Rats. K. W. Buchwald and L. Hudson.—p. 301.
Optimal Mating Time for Pregnancy in Monkey. G. Van Wagenen. —p. 307.
Glucose Tolerance in Rats Following Repeated Small Doses of Alloxan. E. G. Shipley and Adelle N. Rannefeld.—p. 313.
Metabolism of Steroid Hormones: Isolation of Δ^5-Androstenediol-3(β),17(α) and Δ^5-Pregnenediol-3(β),20(α). Sara Schiller, A. M. Miller, R. I. Dorfman, E. L. Sevringhaus and E. P. McCullagh.—p. 322.
Endocrine Function of Spleen and Its Participation in Pituitary-Adrenal Response to Stress. G. Ungar.—p. 329.
Comparison of Adrenal Steroid Diabetes and Pancreatic Diabetes in Rat. D. J. Ingle, R. Sheppard, J. S. Evans and M. H. Kuizenga. —p. 341.
Induction of Estrus in Ovariectomized Golden Hamster. A. H. Frank and R. M. Fraps.—p. 357.
Influence of Goitrogenic Compounds (Sulfonamides and Their Derivatives, Thiourea and Its Derivatives) on Respiration of Thyroid Tissue. S. R. Lerner and I. L. Chaikoff.—p. 362.
Activity of Synthetic Estrogens on Oral Administration in Domestic Fowl and Turkey. R. G. Jaap.—p. 369.

Epidemiol. Information Bulletin, Washington, D. C.

1:801-842 (Nov. 15) 1945

Epidemiological Notes: British Zone in Germany.—p. 801.
Id.: American Zone in Germany.—p. 803.
Id.: Berlin and Hamburg.—p. 805.
Id.: Yugoslavia.—p. 806.
Id.: Taranto Plague Outbreak.—p. 808.
Id.: Plague in Southeast China.—p. 808.
Current Reports on Prevalence of Certain Diseases: Data on Plague, Cholera, Yellow Fever, Smallpox, Typhus and so on Received from October 16 to 31, 1945.—p. 811.

1:843-884 (Nov. 30) 1945

Tuberculosis in Greece. J. B. McDougall.—p. 843.
Epidemiological Notes: The Netherlands.—p. 849.
Id.: Typhus Vaccination in Algeria.—p. 855.

Experimental Medicine and Surgery, Brooklyn

3:299-422 (Nov.) 1945. Partial Index

*Significance of Nutritional Deficiency in Diabetes. M. S. Biskind and H. Schreier.—p. 299.
Experimental Investigations on Pathogenesis of Infarcts. R. Jaffe. —p. 317.
Experiments Supporting Phase Boundary Theory of Electrical Potential in Nerve. T. C. Barnes and R. Beutner.—p. 325.
Observations on Formation, Storage and Excretion of Creatine and Creatinine in Rat in Relation to Phosphate and Carbohydrate Metabolism. H. H. Beard and P. Pizzolato.—p. 330.
Further Studies of Relation Between Creatine-Creatinine Metabolism and Several Body Measurements. H. H. Beard and P. Pizzolato.—p. 344.
Procaine Esterase Test in Toxic Goiter and Carcinoma. B. Kisch. —p. 357.
Pneumocardiogram. F. M. Groedel.—p. 361.
Phlebogram and Intrapneumothorax Pneumocardiogram: Comparative Study. P. R. Borchardt and F. M. Groedel.—p. 397.

Nutritional Deficiency in Diabetes.—Biskind and Schreier believe that diabetes mellitus represents in the vast majority of patients impairment of hepatic response to endogenous insulin and that this results from protracted vitamin B complex deficiency. Thus the concept of insulin resistance may be extended to include most patients with diabetes. Among 94 diabetic patients studied, every one showed signs and symptoms of deficiency of factors of the B complex. Intensive and persistent oral or oral and parenteral therapy with vitamin B complex led to striking improvement in general health and often to great improvement in carbohydrate metabolism, frequently with reduction in insulin requirement or its elimination altogether.

Georgia Medical Association Journal, Atlanta

34:213-238 (Nov.) 1945

Problems in Treatment of Rheumatic Heart Disease. J. Yampolsky. —p. 213.
Coronary Heart Disease: Diagnosis and Treatment. J. W. Brittingham. —p. 219.
Pain in Chest: Its Significance. C. C. Aven.—p. 221.
Fused Kidney, Having Supernumerary Ureter with Extravesical Orifice; Treated by Heminephrectomy of the Left Half. J. R. Rinker.—p. 225.

34:239-276 (Dec.) 1945

Concerning Georgia's Medical Needs: A Few Facts, Fallacies and *Figures. C. W. Roberts.—p. 239.*
Surgery of Peptic Ulcer. J. W. Turner.—p. 243.

Journal of Pediatrics, St. Louis

27:393-504 (Nov.) 1945

Results of Providing a Liberally Adequate Diet to Children in an Institution: I. Acceptance of Foods and Changes in Adequacy of Diets Consumed. Lydia J. Roberts, Ruth Blair and Marjorie Greider. —p. 393.

Id.: II. Growth in Weight and Height. Ruth Blair, Lydia J. Roberts and Marjorie Greider.—p. 410.

Id.: III. Blood and Urinary Excretion Studies Before and After Dietary Improvement. H. Oldham, Lydia J. Roberts and Marjorie Young.—p. 418.

Crying of Newly Born Babies: III. Early Period at Home. C. A. Aldrich, C. Sung and Catharine Knop.—p. 428.

Penicillin Therapy of Staphylococcus Aureus Hemolyticus Infection in Allergic Infant. Golda Fischer and Laura E. McClure.—p. 436.

*Penicillin Therapy in Rat Bite Fever. F. Brooksaler.—p. 442.

Penicillin Locally in Eyes of Newborn Infants to Prevent Ophthalmia Neonatorum. A. Bloxsom—p. 447.

Unusual Fulminating Generalized Staphylococcus Infections Treated with Penicillin. L. Bashinsky.—p. 448.

Prognosis in Acute Glomerulonephritis in Children. J. H. Davis and H. K. Faber.—p. 453.

*Surgical Treatment of Congenital Atresia of Esophagus: Report of 4 Cases. C. R. Lam.—p. 456.

Erythema Exudativum Multiforme (Hebra), Bullous Type: Cases Seen in Contagious Disease Hospital. Mary W. C. Fletcher and Ruth C. Harris.—p. 465.

Pneumonia Due to Streptococcus Viridans: Review of Literature and Case Report of Infant. J. B. Reinhart and W. L. Venning.—p. 480.

Congenital Megacolon: Treatment with Mecholyl Bromide. M. G. Peterman.—p. 484.

Subcutaneous Administration of Sodium Sulfadiazine. K. Glaser and Grace Lawrence.—p. 492.

Penicillin in Rat Bite Fever.—Brooksaler reports a case of rat bite fever due to Streptobacillus moniliformis in a girl aged 18 months. The child was treated with penicillin, and the therapeutic response to this treatment was prompt and permanent. The strain of S. moniliformis recovered was susceptible to the bacteriostatic effect of penicillin in vitro. Penicillin is recommended as the treatment of choice in rat bite and Haverhill fevers.

Congenital Atresia of Esophagus.—Lam reports 4 cases of congenital atresia of the esophagus in which surgical treatment was employed. Three of the infants are now alive and well. The low mortality in this small series may be attributed in part to the fact that the 3 infants who survived were in excellent condition at the time of operation. Pneumonia from aspiration of milk during futile attempts at feeding was prevented because an early diagnosis was made. If the anomaly is suspected, barium should not be used to demonstrate it, since this contrast medium is irritating to the bronchial mucosa. A small amount of iodized oil should be introduced through the catheter under fluoroscopic control and removed after the film has been made. The operation for the repair of atresia of the esophagus is not necessarily an emergency operation. There was a delay of three days between the diagnosis and the procedure in case 3 because of the absence of the thoracic surgeon. Even a two week interval is not incompatible with a successful result. If the diagnosis is made reasonably early, there is ample time for an infant to be taken to a surgical center where there is a competent chest surgeon.

New England Journal of Medicine, Boston

233:*547-576 (Nov. 8) 1945*

*Nontuberculous Pneumonia Complicating Pulmonary Tuberculosis: Review of 111 Cases. G. F. Hogan.—p. 547.

*Night Cramps in Young Men. J. H. Nicholson and A. Falk.—p. 556.

Effects of Infection on Circulation. A. S. Freedberg and M. D. Altschule.—p. 560.

Acute Nephrosis (? Mercupurin). Acute Glomerulonephritis.—p. 567.

Bilateral Bronchopneumonia.—p. 570.

Nontuberculous Pneumonia Complicating Pulmonary Tuberculosis.—Hogan reviews 111 cases of pneumonia complicating tuberculosis in 104 patients; 5 patients had more than one attack. These 111 cases constitute the proved cases discharged from the Philadelphia General Hospital with the combined diagnoses between June 1936 and June 1944. Of this series the course was atypical in 60 per cent, nearly three fourths of the active cases and more than half of the inactive ones. The outcome of pneumonia is altered by the presence of tuberculosis. The death rate in this series was 38 per cent, with deaths twice as numerous when the tuberculosis was active (56 per cent) as when it was inactive (30 per cent). Reactivation of a tuberculous focus that is quiescent or an increase of disease in already active tuberculosis may be expected in 15 per cent of the patients who develop superimposed pneumonia, whether or not it is in the same lobe and whether or not it is specifically treated. Definite therapeutic implications have not been derived from this study. If bacterial antagonism is the correct explanation for the infrequency of pneumonia complicating tuberculosis, therapeutic use of the products of the pneumococcus might be made in the treatment of pulmonary tuberculosis.

Night Cramps in Young Men.—In the course of nine months at an Army Air Force installation 35 men presented themselves for treatment. Nicholson and Falk present observations on 23 of these cases. The average age of the men was 25 years. A person with night cramps is usually free from symptoms during the day, whether resting or walking. He retires without symptoms but is awakened by a cramping pain usually in the calf muscles, although any muscle group in the lower extremity may be involved. Rarely muscle groups in other parts of the body are affected. Vigorous rubbing of the leg or hopping about gradually relaxes the muscles, but there is often a residual soreness lasting for hours. In the treatment of night cramps the authors used quinine sulfate. More than a fourth of their patients failed to obtain relief. The majority of those who obtained relief required a number of doses. The effect of this drug is short lived and not cumulative. The authors are unable to explain why patients should have relief for many days and not infrequently for weeks after ceasing medication. In slightly more than a third of the cases, underlying changes could not be found. The most frequent disorder predisposing to night cramps was static foot deformity, which occurred in 12 cases. Five of these patients also had symptoms directly referable to the feet. In all these cases orthopedic appliances had been used, with partial relief of foot symptoms but without change in the occurrence of the night cramps. In none of the patients was there found any peripheral arterial disease, although in 2 cases there was old deep thrombophlebitis of the lower extremities.

233:577-606 (Nov. 15) 1945

*Penicillin Blood Levels for Twenty-Four Hours Following Single Intramuscular Injection of Calcium Penicillin in Beeswax and Peanut Oil. M. J. Romansky and G. E. Rittman.—p. 577.

*Treatment of Gonococcal Urethritis with Single Injections of Penicillin-Beeswax-Peanut Oil Mixtures. W. Leifer, S. P. Martin and W. M. M. Kirby.—p. 583.

Surgical Relief for Tracheal Obstruction from Vascular Ring. R. E. Gross.—p. 586.

Death Following Intravenous Administration of Papaverine Hydrochloride: Report of 2 Cases. E. L. Sagall and A. Dorfman.—p. 590.

Rheumatoid Arthritis: Its Varied Clinical Manifestations. M. W. Ropes and W. Bauer.—p. 592.

Radiation Pneumonitis.—p. 597.

Osteoid Osteoma of Terminal Phalanx of Right Fifth Toe.—p. 601.

Calcium Penicillin in Beeswax and *Peanut Oil.*—Romansky and Rittman found that a single injection of 300,000 Oxford units of calcium penicillin in 4.8 per cent beeswax (by weight) in peanut oil contained in 1 cc. produces and maintains effective levels of penicillin in the blood for about twenty-four hours and continues to be excreted in the urine for approximately three days. Calcium penicillin in beeswax and peanut oil maintains its potency for at least nine months at refrigerator, room and 37 C. temperatures. Deterioration did not occur after twenty-four hours at 56 C. or after two hours at 100 C.

Single Injection of Penicillin-Beeswax-Peanut Oil Mixtures in Gonococcic Urethritis.—Leifer and his associates gave 217 men with gonococcic urethritis single intramuscular injections of from 100,000 to 300,000 units of penicillin suspended in mixtures of beeswax and peanut oil. Local or systemic toxic manifestations were not noted. Of 88 patients treated with single injections of 100,000 units 74 were cured, and of 91 treated with 300,000 units 83 were cured. The results with 300,000 units of penicillin in beeswax-peanut oil were comparable to those obtained with 100,000 units of penicillin in saline solution given in divided doses; to produce equal results the mixtures required larger amounts of penicillin than did the saline solution. All patients were followed for twenty-one days, both clinically and bacteriologically. Of 24 failures

9 occurred after the seventh day, and 7 of these were detected by bacteriologic methods alone. These results stress the necessity for a minimal post-treatment observation period of twenty-one days. Sodium and calcium penicillin produced equally satisfactory mixtures Varying the concentration of beeswax from 4 to 12 per cent did not produce a significant difference in the results A single intramuscular injection of 1 cc. of a mixture containing 300,000 units of penicillin in 4 to 6 per cent beeswax by volume in peanut oil appears to be a highly satisfactory method of treating acute gonococcic urethritis.

New Orleans Medical and Surgical Journal

98:195-246 (Nov) 1945

Anoxia Resulting from Methane: Report of Case R. L Pullen and W. A Sodeman—p 195
Missed Labor. V. D'Ingianni and N J Tessitore—p 197.
Reversible Heart Disease. T K Williams Jr—p 199
*Blood Pressure in Coronary Occlusion T C Donald Jr—p 209.
Interesting Obstetrical Case Report C G Callender—p 214
Value of Influenza Vaccination M. Ede—p 216

98:247-306 (Dec.) 1945

Annular Areas of Pulmonary Rarefaction in Children. Eileen Phillips and C A Stewart—p 247.
Some Principles of Genetics H Cummins—p 252
Appraisal of Nutritional Status of Children A. E Hansen—p 261
Rheumatic Heart Disease Study of 167 Cases Among 12,317 Autopsies Performed at the Charity Hospital in New Orleans During Ten Years I Uyeda—p 271
Hemolytic Anemia of Newborn (Erythroblastosis Fetalis): Report of Cases Ruth G Aleman—p. 278
Fatal Mediterranean (Cooley's) Anemia G Richarda Williamson and Rena Crawford—p 280.
Some Psychologic Hazards in Adoption of Child M. E Kirkpatrick—p. 285
Hypertrophic Pyloric Stenosis: Analysis of 37 Cases at Charity Hospital L J. O'Neil—p 287.

Blood Pressure in Coronary Occlusion.—Reports cited by Donald indicate that hypertension is present in from 25 to 75 per cent of patients who have attacks of coronary occlusion. He does not accept hypertension as an etiologic factor, pointing out that there is a discrepancy between the incidence of occlusion and hypertension in the two sexes which is unexplainable. The ratio of coronary occlusion in females and males is about 1 to 4. The ratio of hypertension in females and males is about 3 to 2. The blood pressure probably gives the best indication of the immediate prognosis, low systolic readings and small pulse pressures being most ominous. In the first attack a previous hypertension offers a better immediate prognosis, as the blood pressure is less apt to fall to shock levels. The ultimate prognosis is much worse in persons having hypertension, as the damaged myocardium is incapable of keeping up the output of the heart, and the minute volume is decreased. With the development of a second occlusion the already hypertrophied and greatly damaged myocardium is more prone to develop massive pulmonary edema.

Public Health Reports, Washington, D. C.

60:1415-1446 (Nov. 30) 1945

Tuberculostatic Action of Streptothricin and Streptomycin, with Special Reference to Action of Streptomycin on Chorioallantoic Membrane of Chick Embryo E W. Emmart—p. 1415
Epidemiologic Significance of Seasonal Variations in Rodent Ectoparasite Distribution A S Rumreich and J. A. Koepke—p 1421.

60:1447-1482 (Dec. 7) 1945

Age Factor in Disabling Morbidity, 1940 1944 Experience in Public Utility Company. W M Gafafer and R. Sitgreaves—p 1447.
*Dental Caries Experience in Relocated Children Exposed to Water Containing Fluorine: I Incidence of New Caries After Two Years of Exposure Among Previously Caries Free Permanent Teeth H Klein—p. 1462.

60:1483-1518 (Dec. 14) 1945

Apparent Serologic Heterogeneity Among Strains of Tsutsugamushi Disease (Scrub Typhus). Ida A. Bengtson—p 1483.
Epidemic of Severe Pneumonitis in Bayou Region of Louisiana: V. Etiology. B. J Olson and C. L. Larson—p 1488

Effect of Water Containing Fluorine on Incidence of Dental Caries.—Klein states that in the course of a systematic dental examination of persons of Japanese ancestry residing in War Relocation Authority centers two groups of children at two different centers were examined in the summer of 1943 and again in the summer of 1945. The children relocated in the California center consumed fluoride free water originating from melted snows coming off a precipitous mountain. Analysis of this water revealed a fluorine content of 0.1 part per million, a value within the error of measurement. The children relocated to the Arizona center consumed water originating from two deep wells. This water contained fluorine to the extent of 3 parts per million During the two year interval 196 children were exposed to fluorine water in the Arizona Relocation Center and 120 consumed fluoride free water in the California center. Analysis of the dental findings obtained in 1943 and in 1945 reveals that a fluorine content of 3 parts per million in the drinking water is associated with a considerable reduction in new caries in teeth present in the mouth and free of caries at the beginning of exposure. These observations are not intended to constitute an endorsement for addition of as much as 3 parts per million of fluorine to community water supplies for the purpose of reducing the incidence of caries. The data provide information that the addition of small amounts of fluorine to community water supplies deficient in this element effects a reduction in the incidence of caries in the erupted permanent teeth of residents of school age and that such caries inhibition is most noticeable in the erupted teeth of the younger children.

Radiology, Syracuse, N. Y.

45:425-558 (Nov.) 1945

Strange Repercussions of Röntgen's Discovery of X Rays O. Glasser.—p 425
New Kind of Rays W. C Röntgen—p. 428.
Development of Diagnostic X Ray Apparatus During the First Fifty Years P. C. Hodges—p 438
Roentgen Ray Tubes W. D Coolidge and E. E. Charlton.—p. 449.
Development of Roentgen Diagnosis L G. Rigler.—p 467.
Development of Roentgen Therapy During Fifty Years G. E. Pfahler—p 503
Roentgen Radiations in Biologic Research C. Packard—p. 522
Modern Physics and Discovery of X Rays A. H Compton—p 534
A Half Century of Roentgen Rays in Industry. G L Clark—p. 539.
Organized Roentgenology in America. A. W. Erskine—p 549.
Earliest Roentgen Demonstration of a Pathologic Lesion in America. A. C. Cipollaro—p 555.

Surgery, Gynecology and Obstetrics, Chicago

81:593-710 (Dec.) 1945

Segmental Resection of Lesions Occurring in Left Half of Colon with Primary End to End Aseptic Anastomosis: Report Based on 50 Cases J. M Waugh and M. D Custer—p 593
*Penicillin Therapy in Abdominal Surgery Results of Prophylactic and Therapeutic Use in 50 Cases G F. Wollgast—p 599.
War Surgery of Abdomen P. R Imes—p 608.
Gunshot Wounds of Spine: Observations from Evacuation Hospital J L Pool—p. 617.
*Resection of Lung in Pulmonary Suppurative Diseases. Factors Contributing to Progress L M. Carlton and W. E Adams—p 623.
Granulosa Cell Tumor of the Ovary: Clinical and Pathologic Review of 62 Cases J. E Hodgson, M B Dockerty and R D Mussey—p 631.
*Congenital Malformations of First Thoracic Rib: Cause of Brachial Neuralgia Which Simulates Cervical Rib Syndrome. J. C. White, M H Poppel and R Adams—p 643.
Galvanic Tetanus and Galvanic Tetanus Ratio in Electrodiagnosis of Peripheral Nerve Lesions L. J. Pollock, J. G Golseth and A. J. Arieff—p 660
Juxtacervicovesical Fistula M. Douglass—p 667
Intestinal Intubation in Bowel Obstruction: Technic with New Single Lumen Mercury Weighted Tube. F. I Harris—p 671.
Deformation of Skull in Head Injury. Study with "Stresscoat" Technic. E S Gurdjian and H. R. Lissner.—p 679.
Amputations During the War and After P. F Olson—p 688
Penicillin Convulsions: Convulsive Effects of Penicillin Applied to Cerebral Cortex of Monkey and Man. A. E Walker, H C. Johnson and J J Kollros—p 692

Penicillin Therapy in Abdominal Surgery.—Wollgast observed 5 patients who were critically ill with generalized peritonitis. Treatment with penicillin was started late, and all of these patients died. Later 12 additional patients with peritonitis were treated more adequately. Seven received local treatment and parenteral therapy; 5 received only parenteral therapy. Local administration of penicillin in 3 instances consisted in instilling 50,000 units and in 4 other cases 100,000 units of penicillin into the abdominal cavity just prior to closure. Parenteral therapy was administered intramuscularly at three hour intervals. Dosage was varied from 10,000 units to 20,000 units every three hours, totaling 80,000 to 160,000 units every twenty-four hours. These patients also received all other accepted therapeutic measures. The postoperative course in 10 of these cases was unexpectedly mild. Twenty-five patients with infected wounds received penicillin both preoperatively and postoperatively as a prophylactic measure. Treatment consisted in parenteral administration of 10,000 of 15,000 units every three hours intramuscularly for an average of three or four days preoperatively. Treatment was continued postoperatively until the patient had been afebrile for at least three or four days. The average duration of treatment was eleven days. The postoperative course of these patients was very gratifying. Definitive operative procedures on contaminated wounds may be carried out earlier and with greater safety when penicillin is administered prophylactically. A man aged 31 was operated on in another hospital for perforated gangrenous appendix. On the ninth day a small incisional abscess was drained. On the eighteenth day his temperature rose to 103 F., with the onset of a septic course with daily elevations between 104 and 105 F. Improvement had not been noted over a seven week period prior to the use of penicillin, but definite improvement followed soon after initiation of this therapy. This serious postoperative complication was cured by penicillin therapy. Seven patients whose wounds became acutely infected following surgery were treated with penicillin. Six of these wounds responded remarkably to treatment.

Resection of Lung in Pulmonary Suppurative Diseases.—Carlton and Adams report observations on 59 patients with suppurative disease of the lung in whom the involved part was resected. Thirty-six of the patients had primary bronchiectasis, 9 had bronchiectasis secondary to bronchial tumors and tuberculosis, 7 had cystic disease of the lung and 7 had chronic nonspecific pulmonary suppuration. Patients with chronic infection of the lung should be hospitalized for three or four days for observation and laboratory examinations before operation. They should receive routine laboratory study. If anemia and hypoproteinemia are present they are corrected by transfusions of whole blood. Stereoscopic roentgenograms of the chest are made. Bronchography, usually by the aspiratory method, is carried out under fluoroscopic control, and all lobes are filled and spot films are made. For operation adequate exposure is essential. The phrenic nerve is then crushed. This decreases the motion of the diaphragm, facilitates the technical procedures and aids in the rapid obliteration of the remaining space following resection. The authors used the tourniquet technic and closure of the bronchial stump with mattress sutures. During the past two years they have used the dissection technic with individual ligation of vessels as worked out and described by Blades and Kent. The four most important factors in the postoperative care are (1) avoidance of anoxia, (2) maintenance of a clear bronchial tree, (3) early expansion of the remaining lung on the operative side and (4) control of infection. Chemotherapy has been a major factor in the prevention of serious postoperative infection. There were 2 deaths in 45 operations made on 36 patients with bronchiectasis, 20 of which were bilateral.

Congenital Malformations of First Thoracic Rib and Cervical Rib Syndrome.—White and his associates report 10 new instances of congenital abnormality of the first thoracic rib. Five of these have come to operation for the relief of specific complaints, while 5 others have remained wholly asymptomatic. First rib malformations generally consist of a rudimentary structure terminating in a synostosis or pseudoarthrosis with the second rib near the scalene tubercle or in a free end in the soft tissues at the base of the neck, which may be connected by a ligamentous band with the manubrium sterni. On rare occasions the first rib may have a joint near its lateral angle before it fuses with the second. Other skeletal abnormalities which are frequently present and cause distortion of the thoracic outlet consist in deformities of the second rib, the upper end of the sternum, scoliosis of the cervicothoracic spine and vertebral anomalies. Symptoms and clinical evidence of abnormal first ribs consist in supraclavicular bony prominence, irritation or paralysis of the brachial plexus and compression of the subclavian vessels as they cross the defective rib. Cervical arthritis, early carcinoma of the thoracic apex and herniation of the lower cervical intervertebral disk must be considered in the differential diagnosis of brachial neuralgia, even in the presence of an anomalous rib. Malformations of the first thoracic rib cannot be differentiated clinically from cervical ribs. They can be accurately diagnosed in an anteroposterior x-ray film which includes all the cervical and uppermost thoracic vertebrae, provided the film is taken with a long exposure and the mandible in motion. A considerable proportion of first rib deformities are large enough to cause mechanical compression of the nerves and vessels at the thoracic outlet. When symptoms are attributable to this condition, conservative orthopedic measures should be tried before surgical intervention. Scalenotomy alone rarely suffices to decompress these structures but must usually be accompanied by radical resection of the rib from a point close to its articulation with the transverse process forward to its attachment to the second rib or where it disappears beneath the clavicle.

Union Médicale du Canada, Montreal

74:1505-1662 (Nov.) 1945

*Abolishing Anginal Pains in Coronary Disease by Pericoronary Neurectomy: Experimental Study. M. Fauteux and O. Swenson.—p. 1518.
Surgical Treatment of Mental Disorders: Prefrontal Lobotomy. F. Charest.—p. 1526.
*Report on Epidemic of Measles: Globulin of (Human) Umbilical Cord Blood: Its Efficacy in Prevention and Attenuation of Measles. R. Foisy and P M. Larivière.—p. 1535.
Hodgkin's Disease: Study of 30 Cases. P. David.—p. 1542.

Pericoronary Neurectomy in Coronary Disease.—Fauteux and Swenson report two series of experiments on dogs. Sutton and Lueth's method of occlusion of the coronary artery was used in the first series of 10 dogs. In 9 of the animals a positive sensory response was obtained when the coronary artery was temporarily occluded. Pericoronary neurectomy was performed on 10 dogs in the second series of experiments. These dogs were in excellent health at the end of one month. After this interval the ramus descendens of the left coronary artery was ligated. A definite negative sensory response was obtained in 6 of the animals; there was a doubtful affective response in 3, and in only 1 of the 10 animals was a positive sensory response obtained. Pericoronary neurectomy abolishes pain of coronary origin. In addition it has the advantage that destruction of nerve structures vital to other organs can be avoided. The operation does not interfere with cardiac function. Pericoronary neurectomy associated with ligation of the large coronary vein was performed on 1 patient in September 1944 and on another patient in June 1945. Both had attacks of angina pectoris and were unable to work. After the operation the first patient was able to resume his work. This suggests not only that the pain reflexes have been blocked but also that cardiac activity has been improved. The second patient has not yet resumed his work, but he goes up and down the stairs in his house and walks long distances without experiencing discomfort.

Globulin of Human Umbilical Cord Blood in Prevention and Attenuation of Measles.—Foisy and Larivière report an epidemic outbreak of measles which started in an asylum of infants in Montreal on June 24, 1944. Fifty-one of the 300 inmates of the asylum between the ages of 2 and 6 years had measles in 1939 and had acquired active immunity. Sixty-three infants of 249 without active immunity had measles on July 10, 1944, when immunization of the remaining 186 infants was started. Five cc. of globulin of human umbilical cord blood was given to each of these 186 infants. A single anaphylactic reaction occurred, with a general reaction and a temperature of 105 F. for eighteen hours. Measles developed in 42 infants exposed more than five days prior to the immunization. One hundred and forty-four had been exposed less than five days prior to the immunization. Forty-four of them did not develop measles; of the 100 who did, only 3 presented the usual type of the disease, while in 97 the disease was attenuated. In the 44 who did not develop measles, the average acquired passive immunity was of more than a month's duration, since the last case of measles occurred in the asylum on Aug. 3, 1944.

West Virginia Medical Journal, Charleston

41:301-340 (Dec.) 1945

Psychiatry in West Virginia. O. B. Biern.—p. 301.
Psychiatry for General Practitioner: Introduction to Psychiatric Point of View. J. P. Lambert.—p. 302.
Psychiatry and Public Health. J. J. Michaels.—p. 307.
Mental Illness—Public Health Problem. E. F. Reaser.—p. 311.
Common Mechanisms Seen in Functional Disorders. D. C. Cameron.—p. 316.
Is Psychiatry a Medical Luxury? W. Muncie.—p. 320.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine, Liverpool

39:63-136 (Oct.) 1945

Role of Anopheles Pharoensis Theobald in Transmission of Malaria in Kenya Colony. P. C. C. Garnham.—p. 63.
Ocular Lesions in Trypanosomiasis. H. Ridley.—p. 66.
Studies of Biologic Properties of Spirocheta Recurrentis in Ethiopian High Plateau. B. Wolman and M. Wolman.—p. 82.
Modification of Ide Test for Syphilis and Yaws. E. C. Smith, B. G. T. Elmes and J. A. Smith.—p. 94.
Generalized Recurrence in Leishmaniasis (Oriental Sore): Report of Case with 110 Lesions. A. Dostrovsky and F. Sagher.—p. 98.
*Effect of Urine on Endameba Histolytica. J. W. Watson.—p. 101.
Investigations in Chemotherapy of Malaria in West Africa: IV. Report on Case of Acute Quinacrine Poisoning. J. L. Markson and J. Dawson.—p. 117.
Observations on Filaria, Foleyella Leiperi (Railliet, 1916) of North American Leopard Frog. S. G. Cowper.—p. 119.
Morphology of Pharyngeal Armature in Anopheles Gambiae and Anopheles Gambiae Var. Melas from Southern Nigeria. L. J. Chwatt. —p. 124.
*Prolonged Oral Administration of Quinacrine: I. The Effects on Tests of Organ Function. B. G. Maegraith.—p. 128.
*Prolonged Oral Administration of Quinacrine: II. Hematologic Effect. B. G. Maegraith.—p. 133.

Effect of Urine on Endameba Histolytica.—Watson and his associates report experiments which demonstrate that at the temperature of the human body urine is lethal to Endameba histolytica. This ameba is unable to live and multiply in urine unless it is diluted to nearly one tenth of its normal concentration. The effect of urine is produced slowly, beginning to be perceptible only after about two hours' exposure. After twenty-four hours the great majority of the amebas have become degenerate and unrecognizable. The toxicity of urine is partly explained by the effects of acidity, of osmotic pressure and of urea and ammonia in the urine. It seems highly improbable that E. histolytica can establish itself in any part of the urinary tract where it will be continually immersed in urine, even as dilute as that in the kidney tubules. Hence amebas which gain entrance to the kidney, the ureter, the bladder or the urethra (by direct introduction of the organisms into the urethral aperture, by fistulous extension of a rectal ulcer or by bursting of a liver abscess) will probably succumb to the lethal effect of the urine. Since, however, the amebas retain their motility for upward of two hours, it is possible for some to penetrate the tissue forming the walls of these organs, where, protected from the urine, they can multiply and produce lesions. Any condition of the host in which the composition of the urine is abnormal, showing low osmotic pressure or low ammonia and urea content, or in which preexisting disease has destroyed part of the protective epithelium lining of the urinary tract, would facilitate the penetration and establishment of E. histolytica in the tissues. Probably, once amebic lesions had been established, amebas would periodically emerge into the cavity of the urinary tract and be swept out in the urine during micturition and be found in the urine.

Prolonged Administration of Quinacrine.—The experimental subjects were 43 healthy men, Oxford undergraduates and soldier volunteers who had not taken quinacrine previously. Approximately 0.1 Gm. of quinacrine daily was given over a period of nine to twelve months. Tests of liver and kidney function were made and compared with tests done before the administration of quinacrine. Evidence indicated that this course of quinacrine did not impair the efficiency of the liver or the kidney.

Hematologic Effect of Prolonged Use of Quinacrine.—Sixty-five women and 30 men were given quinacrine in a dosage of 0.4 to 0.7 Gm. weekly for four to ten months. During this period there was not a significant change in the red cell count, the white cell count, the hematocrit or the erythrocyte sedimentation rate. A small rise in hemoglobin concentration occurred in the men in both experimental and control groups.

British Journal of Dermatology and Syphilis; London

57:169-196 (Sept.-Oct.) 1945

Dermatitis Due to a Case Hardening Compound. G. P. B. Whitwell. —p. 169.
Solitary Neurofibroma of Scalp. E. L. Cohen.—p. 172.

British Journal of Industrial Medicine, London

2:125-182 (July) 1945

Health and Environmental Conditions in Iron Foundry. G. F. Keatinge and N. M. Potter.—p. 125.
Trichlorethylene: Absorption, Elimination and Metabolism. Joan F. Powell.—p. 142.
Added Infection in Industrial Wounds. Barbara Clayton-Cooper and R. E. O. Williams.—p. 146.
Hot Humid Environment: Its Effect on Performance of Motor Coordination Test. J. S. Weiner and J. C. D. Hutchinson.—p. 154.

British Journal of Radiology, London

18:335-368 (Nov.) 1945

Radiologic Aspects of Intracranial Pneumocephalus. D. C. Eaglesham. —p. 335.
Quantity and Quality of Radiations Scattered Within a Medium Irradiated by High Voltage Radiation. C. W. Wilson.—p. 344.
*Gaucher's Disease—Early Radiologic Diagnosis. W. Tennent.—p. 356.
Bone Destruction in Cases of Carcinoma of Uterus. D. W. Smithers and R. D. S. Rhys-Lewis.—p. 359.
Pulmonary Metastases from Tumors of Testis Simulating Hydatid Cysts Radiologically. L. M. Shorvon.—p. 363.

Gaucher's Disease: Radiologic Diagnosis.—Tennent presents the history of a girl, aged 11, who had an enlarged liver and spleen. X-ray examination revealed slight expansion of the lower femoral diaphyses, with cortical thinning and generalized osteoporosis. Following splenectomy, the patient made an uninterrupted recovery. Sections of the spleen showed the splenic sinusoids distended with the so-called Gaucher's cells. The whole skeleton was examined but, as anticipated, significant changes were not found in any bones except the femurs. The disease was of the visceral type, with slight anemia and few bone changes. The lower ends of both femurs showed about the earliest stage at which roentgenologic diagnosis of Gaucher's disease can be made. Without information of splenomegaly the film might have been passed over, but, if comparison is made with a normal child of the same age, certain diagnostic points may be elicited. First there is general osteoporosis, which increases in degree from above downward. Secondly there is expansion of the lower ends of the bones, mainly manifested on the medial aspects of the femurs, and, while there is a true overall increase in the breadth, the lateral wall takes little part in this increase during the earliest stage of the disease. Thirdly there is cortical thinning and small medullary areas of erosion of the trabeculae. The cortical thinning starts in the midshaft and again is largely confined to the medial wall. In early cases the chief danger is that it may be mistaken for an osteomyelitis and the bone needlessly drained.

British Journal of Tuberculosis, London

39:77-108 (Oct.) 1945

Prognosis of Chronic Miliary Tuberculosis in Children. R. B. Illing. —p. 79.
Syphilis of Lung in Bantus. B. A. Dormer, J. Friedlander and F. J. Wiles.—p. 85.
*Etiology of Silicosis. L. W. Hale.—p. 91.

Etiology of Silicosis.—Conditions such as chronic sinusitis with postnasal drip, or repeated catarrhal bronchial infections, which temporarily or permanently destroy cilia, predispose to silicosis. Dust which has entered the bronchioles and the alveoli is not in contact with ciliated epithelium and depends on the pulmonary phagocytes and the lymph vessels for its removal. Any disease process (e. g. pneumonia) which affects the alveolar wall, the lymph vessels or the lymphoid aggregations will, by producing scarring in these delicate structures, impair their function of carrying foreign matter to the lymph nodes and will thus predispose to silicosis. In the phagocyte containing ingested silica changes closely resembling those seen in a tubercle appear. The cell enlarges, the cytoplasm increases, lipoid droplets are distinguishable in the cytoplasm and later the nucleus may divide repeatedly, resulting in the formation of a typical Langhans giant cell. Some of the phagocytes, in passing through these stages, appear to become "mummified" and their nuclear structure ceases to take stains, but the cell envelop may not disintegrate for a long time and the silica particles remain within it. The essential feature of the silicotic process is an excessive fibrosis in the intrapulmonary lymphoid aggregations, together with a fibrosis of the perilymphatic connective tissue and a hyaline modification of the fibrous tissue due to the specific effect of silica. The nodules so formed impede the flow of lymph. The nodules are tough, even hard, and contain gritty feeling foci. There is a zone of black surrounding them owing to the presence of carbon particles trapped among the fibrous tissue. Both the rate and the extent of fibrosis are in inverse proportion to the size of the silica particle, those between 0.5 and 1 micron being most reactive; particles above 10 microns cause a standard degree of fibrosis without tendency to progression. Particles smaller than 0.002 micron were not retained in the tissues, caused little reaction and were excreted in the urine. While pulmonary tuberculosis is among those respiratory conditions which predispose to silicosis, silicosis renders a man more vulnerable to tuberculosis. Even with modern hygienic conditions, 75 per cent of silicotic patients die of pulmonary tuberculosis.

British Medical Journal, London

2:635-676 (Nov. 10) 1945

Use of Micro-Organisms for Therapeutic Purposes. H. W. Florey.—p. 635.
*Neurologic Complications of Infective Hepatitis. J. F. Stokes, J. R. Owen and E. G. Holmes.—p. 642.
Trick Test to Detect Night Blindness "Malingerers." E. Epstein and S. A. H. Lesser.—p. 644.
General Anesthesia and Temperature of Inhaled Gases. A. Mills and Margaret Soutar.—p. 646.
Foreign Bodies in Bronchi and Esophagus in Children. M. L. Abercromby.—p. 647.
Unusual Case of Erythroblastosis Fetalis. E. F. Aubert, J. B. Cochrane and M. E. Ellis.—p. 648.
Tuberculosis Among Prisoners of War in Germany. A. L. Cochrane.—p. 656.

2:677-714 (Nov. 17) 1945

Therapeutic Effect of Induced Jaundice in Rheumatoid Arthritis. Frances Gardner, Alice Stewart and F. O. MacCallum.—p. 677.
Acute Nonspecific Mesenteric Lymphadenitis. I. Aird.—p. 680.
Diets of School Children in Two Industrial Towns. E. R. Bransby and Gertrude Wagner.—p. 682.
Report on Nearthrosis of Shaft of Humerus for Amputations Round the Elbow Joint. L. Gillis.—p. 686.
Agranulocytosis After Sulfonamide Sensitization: Penicillin Therapy: Death from Pseudomonas Pyocyanea Septicemia. J. D. Cameron and J. R. Edge.—p. 688.
Acute Yellow Necrosis of Liver Following Trilene Anesthesia. K. N. Herdman.—p. 689.
Study of Neurosis Among Repatriated Prisoners of War. W. H. Whiles.—p. 697.

Neurologic Complications of Infective Hepatitis.—Stokes and his associates classify less well recognized neurologic findings in infective hepatitis and separate them into four main groups. First, the picture commonly found in the fatal case. Second, a symptom complex comprising generalized or localized muscular rigidity with increased tendon jerks, sometimes but not invariably associated with extensor plantar responses; in addition choreiform movements have been observed, and in 1 case a parkinsonian tremor. Third, a group of cases with large focal hemorrhages into nervous tissue, which may or may not produce localizing signs. Fourth, those cases showing signs of peripheral neuritis in which there is good evidence for direct relation to the onset of infective hepatitis.

2:715-754 (Nov. 24) 1945

Survey of Fungous Diseases in Great Britain: Results from First Eighteen Months. J. T. Duncan.—p. 715.
Treatment of Acute Appendicitis: Study of 480 Consecutive Cases. A. Lyall.—p. 719.
Heavy Nupercaine Spinal Analgesia in Operative Obstetrics, with Report of 394 Cases. L. Resnick.—p. 722.
Bladder Neck Obstruction Due to Nonmalignant Disease of Prostate. H. H. Stewart.—p. 724.
Paradoxical Embolism, with Report of Case Due to Ventricular Septum Defect. C. A. Birch.—p. 727.
*Actinomycosis Successfully Treated with Penicillin: Report of 2 Cases A. J. C. Hamilton and H. J. R. Kirkpatrick.—p. 728.

Actinomycosis Successfully Treated with Penicillin.—Hamilton and Kirkpatrick present 2 cases of cervicofacial actinomycosis. The first concerned a linotype operator aged 35 and the second a railway porter aged 15. In both cases penicillin was administered systemically by intramuscular injection. During the first half of the course of treatment the dose was 33,000 units every three hours; thereafter the dose was reduced to 25,000 units every three hours. There was a gradual diminution in the size of the lesion. Treatment was continued until the discharge had ceased and the lesions had greatly diminished in size. The first patient received in all 5,800,000 units of penicillin and the second patient 5,200,000 units. A month after discharge from the hospital there was slight thickening of the tissues at the site of the lesion, but evidence of an active inflammatory process was not present. The results obtained demonstrated the curative effect of penicillin, but more prolonged observation of the patients will be required to establish that viable Actinomyces capable of proliferation does not remain embedded in the tissues. According to examinations carried out by Garrod, different strains of Actinomyces differ in their susceptibility to penicillin. Whereas two strains showed approximately the same degree of sensitivity as the standard staphylococcus, a third strain was eight times as resistant, a fourth strain was four times as resistant and a fifth strain grew sparsely and atypically in sixteen times the concentration of penicillin tolerated by the staphylococcus.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

52:417-544 (Oct.) 1945

Behavior of Fetus in Utero, with Special Reference to Incidence of Breech Presentation at Term. C. K. Vartan.—p. 417.
Body Temperature—Diagnostic Aid in Menstrual Disorders and Sterility. H. E. Nieburgs.—p. 435.
*Association of Erythroblastosis Fetalis and Accidental Antepartum Hemorrhage. A. E. Burch.—p. 463.
Morphologic Study on Chorioepithelial Proliferations (Based on 10 Cases). W. A. Laqueur.—p. 468.
*Effect of Postoperative Exercises and Massage on Incidence of Pulmonary Embolism at Chelsea Hospital for Women. J. P. Erskine and I. C. Shires.—p. 480.
Short Study of Histaminase Activity During Pregnancy. E. W. Koloszynski.—p. 486.
Acute Hydraminos: Brief Survey of Recent Literature, with Report of Case Simulating Concealed Accidental Hemorrhage. D. T. O'Driscoll.—p. 496.
Treatment with Penicillin of Some Obstetric Cases. J. R. E. James.—p. 501.
Case of Meigs's Syndrome. N. Erez.—p. 506.
Carcinoma of Female Urethra: Review of Literature and Report of 3 Cases. S. G. Clayton.—p. 508.

Erythroblastosis Fetalis and Antepartum Hemorrhage.—Burch and Allot investigated all cases of antepartum hemorrhage occurring at St. Alfege's Hospital between February and June 1945. It was found that 5 of 10 of the mothers who had antepartum hemorrhage were Rh negative with Rh positive husbands and 3 of these had anti-Rh agglutinins. Of the 3 who were delivered soon after the antepartum hemorrhage, 1 had a child with only a moderate degree of jaundice who recovered without transfusion, another a child with gross hydrops and the third a child stillborn, possibly as a result of the course of labor. In the 2 mothers who were not delivered until some weeks after the first hemorrhage the fetus was stillborn, macerated and of a size corresponding roughly with death at the time of onset of the bleeding. The author concludes that a woman in whom isoimmunization can occur is prone to accidental antepartum hemorrhage, and the ensuing placental damage may be a factor in transmission of antigen and agglutinin.

Effect of Postoperative Exercises and Massage on Pulmonary Embolism.—At the beginning of 1937 a massage department was established at the Chelsea Hospital for Women. The members of the massage team were to instruct and supervise postoperative exercises and to carry out massage in all cases after abdominal operations and operations for the repair of genital prolapse. The incidence of fatal embolism decreased by more than 50 per cent during the seven year period subsequent to the introduction of the massage and exercise procedure.

Lancet, London

2:585-620 (Nov. 10) 1945

Pitfalls of Tropical Surgery. W. H. Ogilvie.—p. 585.
Psychiatric Experiences of General Physician in Malta, 1941, 1943. R. E. Tunbridge.—p. 587.
Sore Nipples: Causes and Prevention. M. Gunther.—p. 590.
*Infective Hepatitis: Transmission by Feces and Urine. G. M. Findlay and R. R. Willcox.—p. 594.
Trichlorethylene as General Anesthetic in Dental Surgery: Report Based on 2,000 Cases. A. H. Galley.—p. 597.
Postscarlatinal Encephalitis: Report of Case. R. S. Illingworth.—p. 600.

Transmission of Infective Hepatitis.—Findlay and Willcox describe their studies on transmission of infective hepatitis by administration of feces and urine from spontaneous and experimental cases. Of 99 recipients of possibly infected material, feces or urine, 24 are regarded as having given a positive response: 12 with definite icterus and the symptoms of infective hepatitis, 12 with subicterus but with biochemical changes in urine and blood and slight symptoms. Of the primary inoculations which were positive 12 had definite icterus and 4 were subicteric; of the 8 positive second passages all were subicteric. If the persons receiving neoarsphenamine are discarded there are 18 positives, but it is not considered that the injections of neoarsphenamine were alone responsible for these 6 positives. The explanation for this comparatively low proportion of positives might be destruction of the causal agent by the gastric juice or preexisting immunity. The immunity induced by one attack of infective hepatitis is probably considerable in view of the small number of true second attacks. Since subicteric cases undoubtedly occur during outbreaks of infective hepatitis, the chances of exposure to virus and thus the possibility of acquiring immunity must be considerable among the general population. It would seem probable that the virus of infective hepatitis has two possible ports of entry: through the nasopharynx as a droplet infection and through the alimentary canal as the result of contamination of food by infected feces or urine.

2:621-656 (Nov. 17) 1945

Tuberculosis in Childhood. A. Moncrieff.—p. 621.
Primary Tuberculosis in Children Causing Long Illness. J. V. Hurford. —p. 624.
Preicteric State of Infective Hepatitis: Value of Biochemical Findings in Diagnosis. M. R. Pollock.—p. 626.
Relapsing Fever with Nephritis and Subarachnoid Hemorrhage. H. A. Dewar and R. Walmsley.—p. 630.
Early Treatment of Wounds of Knee Joint. P. H. Newman.—p. 632.
*Staphylococcic Leptomeningitis Treated with Intracisternal Penicillin. L. H. Worth.—p. 634.

2:657-692 (Nov. 24) 1945

Rheumatic Fever and Heart Disease: Harveian Oration. J. Parkinson. —p. 657.
Waking Temperature in Relation to Female Fecundity. Mary Barton and B. P. Wiesner.—p. 663.
Ovarian Function and Body Temperature. I. Halbrecht.—p. 668.
Infections of Superficial Palmar Space. P. M. Birks.—p. 669.
Treatment of Epididymitis. S. M. Laird.—p. 670.

Intracisternal Penicillin in Staphylococcic Leptomeningitis.—The case of staphylococcic leptomeningitis described by Worth developed in a man with osteomyelitis of the spine following diagnostic lumbar puncture. The situation was desperate, and radical laminectomy, with removal of all dead bone, was required together with intracisternal penicillin, the only route available owing to the lumbar sepsis. Cisternal puncture produced turbid cerebrospinal fluid, and many staphylococci were seen in a direct film. Fifty thousand units of penicillin was given intracisternally and 30,000 units intramuscularly every three hours. Intramuscular penicillin and daily cisternal punctures with intracisternal instillation of penicillin were continued for a week. Interruption of the treatment for a single day produced an immediate unfavorable change in the clinical picture. Further intracisternal penicillin in doses of 50,000 and 30,000 units rapidly controlled the condition. The intracisternal injection of these large doses did not produce severe reactions.

2:693-728 (Dec. 1) 1945

Retropubic Prostatectomy: New Extravesical Technic: Report of 20 Cases. T. Millin.—p. 693.
Ambulatory Treatment of Early Syphilis with Penicillin: Rationale, Experimental Basis and Preliminary Results. E. M. Lourie, H. O. J. Collier, A. O. F. Ross, D. T. Robinson, R. B. Nelson and D. T. Robinson.—p. 696.
*Effect of Large Doses of Alkali on Kidney Function. Army Malaria Research Unit.—p. 701.
Effect of Penicillin on Bacillus Proteus. G. T. Stewart.—p. 705.
*Acute Brachial Radiculitis. G. J. Dixon and T. B. S. Dick.—p. 707.
*Extensive Interstitial Calcinosis with Osteoporosis and Scleroderma-Dermatomyositis. B. C. Medvei.—p. 708.

Effect of Large Doses of Alkali on Kidney Function.—A Malaria Research Unit studied in normal subjects the effects of intensive alkali treatment. These investigations assert that intensive alkali therapy of this kind is accompanied by dangers, and its efficacy is open to question. Three men were given 60 grains (4 Gm.) of sodium bicarbonate and 60 grains of sodium citrate every two hours. One subject received this course for one day, 2 subjects for three days. All the subjects on alkali had disturbances of renal function. In 1, on the alkali course for three days, this was severe and led to a threefold increase in blood urea. All the subjects on alkali developed fairly intense alkalosis, not entirely compensated, together with sodium and water retention. There was dilution of the blood by about 10 per cent. Both persons on alkali for three days complained of symptoms. A fourth subject was given an equivalent amount of sodium chloride for twenty-four hours. He showed a slight degree of sodium and water retention without alteration of renal function. Large doses of alkali should not be administered in conditions in which renal failure may supervene.

Acute Brachial Radiculitis.—Dixon and Dick's report is based on a detailed study of 16 typical cases of brachial radiculitis. It invariably starts with some pain in the root of the neck and shoulder region. Usually the pain is very severe, and often it complicates the course of an acute infectious fever or the convalescence from a surgical operation. Palsy is often not noticed for several days, in fact not until the pain begins to abate; then the patient usually finds he is unable to lift his arm. Muscular wasting follows and is usually extensive at the end of fourteen days. An area of sensory loss, although not complained of by the patient, is usually found over the deltoid muscle. The authors have excluded cases in which wasting and weakness was not well defined in the muscles of the shoulder girdle and trauma or injection of foreign serum appeared to be the precipitating cause. The authors followed the course of 16 patients over a considerable period. Neither fitting with abduction splints nor treatment with vitamin B_1 appeared to alter the course of the disease. Ten patients have shown complete functional recovery after eight to eighteen months. One was so far recovered at the end of five months that he returned to duty, a second with complete recovery on one side is recovering from a relapse on the other side and a third is still showing slow recovery at the end of two years. Of 3 cases that have been stationary or are deteriorating, 1 shows very little disability, the diagnosis in a second is doubtful, and only the third presents a severe residual disability. Recurrences developed in 5 cases, 2 at the end of six weeks, 2 at six months and 1 at the end of five years.

Extensive Interstitial Calcinosis.—Medvei reports a case in which extensive interstitial calcinosis was associated with diffuse osteoporosis, dermatomyositis and scleroderma in a woman aged 32. The calcification made the patient look as if she was covered with armor plating. Fundamental derangement in the calcium and phosphorus metabolism could not be shown chemically. Focal oral infection was present. Reduction of the parathyroid tissue by operation did not improve the patient's condition. The microscopic appearance of a piece of excised muscle, the eosinophilia, the excessive erythrocyte sedimentation rate and the oral infection all point to an inflammatory process in the muscles and, with the edema and the skin lesion, complete the picture of a case belonging to the dermatomyositis-scleroderma group of Dowling and Griffiths.

Medical Journal of Australia, Sydney

2:325-352 (Sept. 15) 1945

Blood Groups, Subgroups, M, N Types and Rh Subtypes in Filipinos. R. T. Simmons and J. J. Graydon.—p. 325.
Anticoagulant Effect of Perfusing Organs: Liver, Kidney and Lung. E. R. Trethewie.—p. 328.
Can Epilepsy Be Cured? Results of Treatment. N. V. Youngman. —p. 332.
Note on Incubation Period of Scrub Typhus and Its Correlation with Clinical Severity. R. Andrew.—p. 335.
Method of Continuous Intramuscular Infusion of Penicillin Solutions. J. Loewenthal.—p. 336.

New Zealand Medical Journal, Wellington

44:219-294 (Oct.) 1945

Sequelae of Diseases Contracted in Middle East. J. R. Boyd.—p. 222.
Diagnosis and Treatment of Chronic Amebiasis. J. D. Cottrell and J. J. G. Peddie.—p. 230.
*Middle Meningeal Hemorrhage. R. Orgias.—p. 242.
Skin and the Solomons. J. W. E. Raine.—p. 249.
Application of Stretch Reflex to Identification of Lesion of Upper Motor Neuron. I. M. Allen.—p. 257.
Mastoidectomy Simplified. E. L. Marchant.—p. 268.

Middle Meningeal Hemorrhage.—Orgias describes 7 cases of middle meningeal hemorrhage which were encountered among 1,529 cases of head injury. Of the 67 deaths from head injury, 3 were due to middle meningeal hemorrhage. A detailed inquiry into the circumstances of the accident and the condition of the patient are of great importance for a correct diagnosis. The most useful sign has been coma or a deepening coma or a drift into unconsciousness. The pupil has been dilated or has become dilated on the affected side in all these cases. The reaction to light was variable, usually depressed or absent. The pulse rate was between 50 and 60 and full. The blood pressure was moderately elevated. There was usually some increase in tone of the limbs or loss of movement on the contralateral side. An inspection of the head with palpation is important, as this may reveal bruising or edema on the side of the lesion There is usually a fracture across the line of the middle meningeal artery. In certain instances without a history the diagnosis can only be suspected and an exploratory trephine is necessary. Operation should not be delayed. None of the patients showed a dramatic return of consciousness. Therefore efforts had to be directed toward preventing pulmonary complications and maintaining nutrition. The foot of the bed was raised and the patient nursed on the side and rolled to the opposite side hourly. A special nurse kept the airway clear with suction Three pints of nutrient fluid of 1,500 calories was given by stomach tube daily. The hemoglobin was returned to normal as soon as possible by blood transfusion to ensure adequate oxygenation of the brain. Sulfadiazine 4 Gm. daily given by stomach tube helped to control pulmonary infection. All patients were given ½ grain (32 mg.) of phenobarbital twice daily for several months in the hope that traumatic epilepsy could be avoided

Proceedings of Royal Society of Medicine, London

38:663-706 (Oct.) 1945. **Partial Index**

Discussion on Exophthalmos and Endocrine Disturbance W R Brain and others —p 666.
Discussion on Biochemistry and Psychiatry. G D Greville and others —p 671
Late Results of Albee Fixation of Tuberculosis of Spine D M. Aitken —p 685.
Discussion on Management of Permanent Colostomy W E Miles and others —p 691.
Wilhelm Conrad Röntgen (1845 1923) and Early Development of Radiology E A. Underwood —p 697.

South African J. Medical Sciences, Johannesburg

10:67-108 (Sept.) 1945

Vitamin A and Porphyrin like Fluorescence in Livers of Pellagrins, with Special Reference to Effects of High Carbohydrate Diet and Methionine. J. Gillman, T. Gillman and S Brenner —p. 67.
Survey of Vitamins in African Foodstuffs· IV. Thiamine Content of Beans and Other Legumes L Golberg, J M Thorp and Sheila Sussman —p. 87
*Importance of Standardizing Oxygen Content of Blood in Hematocrit Determinations L Berk —p 95
Simple Qualitative Test for Erythrocyte Fragility L Berk —p 99
Growth Patterns as Secondary Sex Characteristics E H Cluver and E Jokl —p 105.

Oxygen Content of Blood and Hematocrit Determination.—Berk shows that differences in the oxygen content of samples of venous blood may alter the hematocrit by as much as 3 per cent. This disturbance affects the mean corpuscular hemoglobin concentration figure by up to 3 per cent and the mean corpuscular volume figure up to 18 cubic microns It is suggested therefore that all samples of blood should be standardized by bringing them into gaseous equilibrium with the atmosphere before the performance of a hematocrit determination

Transactions Roy. Soc. Trop. Med. and Hyg., London

39:91-176 (Oct) 1945

Late Results of Treatment of Sleeping Sickness in Sierra Leone by Antrypol Tryparsamide Pentamidine and Propamidine Singly and in Various Combinations R. D Harding —p 99.
Leprosy of Large Intestine and Gallbladder. Case Report, with Review of Literature. C. E Taylor —p 125.
Chemotherapy of Experimental Leishmaniasis. II Dose Response Curve for Activity of Sodium Stibogluconate. L G. Goodwin —p 133
Investigation on New Repellents for Protection of Man Against Mosquito Attacks. D. Blagoveschensky, N Bregetova and A. Monchadsky. —p 147.
Identity of Ciliate Balantidium Minutum, Alleged Parasite of Man J. W. Watson —p 151
Observations on Coprophilic Habits of Ciliate Balantiophorus Minutus Schewiakoff. J. M. Watson —p. 161
Types of Eberthella Typhosa in Palestine. L Olitzki, Z Olitzki and M. Shelubsky.—p 167.

Chinese Medical Journal, Washington, D. C.

62:305-404 (Oct.-Dec.) 1944. **Partial Index**

Comparison of Basal Metabolism of Chinese in Szechuen During Sleeping and Walking States D. F. Pen and L. G. Kilborn —p. 305.
Malaria Incidence in Two Districts in Western Chekiang, China. H C. Kan.—p 311.
Attempts to Recover Typhus Rickettsia from Patients Afflicted with Thromboangiitis Obliterans W. T Liu.—p 320
*Susceptibility of Phthirus Pubis to Infection with Typhus Virus H. L Chung —p 331.
Studies on Typhus Fever Epidemic Occurring in a Poor House. II. Etiologic and Epidemiologic Studies K H Pang —p 334
Id · III Control Measures, with Special Reference to Use of Typhus Vaccine. K. H. Pang, S H Zia, S. M. Chen and Y. S Feng —p 347.
Blood Transfusion: Review of 188 Transfusions in 165 Cases C M. Lee and J S. Pan —p 351
Bisulfite Binding Substances in Human Blood. W. N. Bien —p. 358
Amebic Colitis, with Special Reference to Perforation· Study of 20 Autopsied Cases. C. C Tan and Y. Liu —p 366

Susceptibility of Phthirus Pubis to Infection with Typhus.—Chung fed three batches of laboratory bred pubic lice on 3 typhus fever patients for from seven to nine days during the height of the disease. These pubic lice were found to be infectious, as demonstrated by guinea pig inoculations. The inoculated guinea pigs showed typical febrile reactions and not infrequently also scrotal swelling. Rickettsia prowazeki was demonstrable in scrapings as well as in tissue cultures of the inflamed tunica and in the intestine of body lice inoculated rectally with the brain emulsion of infected guinea pigs. The positive feeding experiments reported here suggest that under certain circumstances the pubic louse may act as a transmitter of typhus

Progrès Médical, Paris

73:275-304 (Sept. 10-24) 1945 **Partial Index**

Hypoalimentation and Hyporesistance to Alcohol and to Tobacco L Binet and R Crosnier —p 275
*Edematous Gastritis M Loeper —p. 277
Treatment of Anemia with Iron Preparations J. Mallarmé —p 279
*Treatment of Hemophilia with Dioxydiethylstilbestrol (Stilbestrol). P Chassagne —p 282.

Edematous Gastritis.—Edematous gastritis may be associated with severe anemia, cachexia, certain neoplasms and ulcers, but it may also occur as an autonomous disease. It often alternates with urticaria and seems to be an internal manifestation of urticaria Clinically the edematous gastritis may be absolutely latent It is manifested by indigestion and discomfort, by pain and by heartburn. Gastroscopy assists in the diagnosis. There may be present an edematous swelling of the mucosa with a pale central zone and a darker periphery; the edema may be present on the lesser curvature, the anterior pillar, the fornix or the pillars of the antral sphincter, but the pylorus is not frequently involved There may be small erosions on an edematous base, some mucus and a few eosinophils The duration of the edematous gastritis may be from two to eight days In the great majority of the cases the condition is caused by the ingestion of certain foods, particularly of mollusks, crustacea, fish and sausage. Histamine frequently is the immediate cause. A specific predisposition is to be considered. With certain patients it consists in a preliminary atrophy of the mucosa, in vagotonic persons it consists of hypomyxia and hypoleukocytosis and in still others the predisposition consists in hyperergy close to anaphylaxis. Treatment consists of a strict diet and administration of bismuth and charcoal Atropine may favor leukopedesis and myxorrhea and may act as an antianaphylactin. Desensitization may be effected by the administration of peptone and pepsin prior to meals.

Diethylstilbestrol Treatment of Hemophilia.—Intramuscular injections of 0 5 to 1 0 mg. of diethylstilbestrol in oil every day for five days were effective in restoring the coagulation time to approximately normal levels The same effect may be produced by the oral administration of a 5 mg. tablet three times a week. Chassagne suggests large doses of the drug during hemorrhagic periods. Five to 10 mg. should be administered by mouth every day for one week, or 1 to 5 mg. should be given intramuscularly every day during this period. Several days are required to obtain an improvement in the coagulation time. Apart from the hemorrhagic periods, a prolonged treatment is required. This should consist of oral administration of 1 to 3 mg. of the drug every day or every second day for several weeks. Pigmentation of the genitals following administration of the drug was observed in adults and in adolescents.

73:307-320 (Oct. 10) 1945. Partial Index

Tuberculosis of Eyes. P. Bailliart.—p. 307.
Fatal Diphtheria on the Hundredth Day of Onset: Cellular Lesions of Dorsal Nucleus of Vagus. J. S. Bourdin.—p. 309.
*Nature of Icterus Due to Administration of Arsphenamine Compounds to the Syphilitic. J. Marshall.—p. 310.
Fetal Erythroblastosis and Rhesus Factor. R. André.—p. 311.
Intermammary Pruritus and Pruritus of Legs. M. Pignot.—p. 312.

Icterus Due to Arsphenamine Compounds.—Marshall reports clinical observations of postarsphenamine jaundice in syphilitic patients in England during the period 1941 to 1944. From 1941 to 1943 treatment of syphilis consisted of four series of injections with neoarsphenamine and preparations of bismuth; each series consisted of ten injections of 0.6 Gm. of neoarsphenamine and ten injections of 0.20 Gm. of a bismuth compound at the rate of one of each weekly. There was a rest interval of one month after each of the series. Fifty per cent of the syphilitic patients to whom this treatment was given developed jaundice, the majority on about the hundredth day after the first injection. In 1944 a rapid twenty day treatment with oxophenarsine hydrochloride and bismuth or penicillin was instituted. Jaundice likewise occurred on the hundredth day after this treatment. Postarsphenamine jaundice is clinically indistinguishable from infective hepatitis, significant biochemical difference between the two has not been demonstrated, and pathologically it has been shown by liver biopsy that changes in the liver are similar in the two conditions. Postarsphenamine jaundice is probably spread by infected syringes. By boiling the syringes before and after injections the percentage of icterus was reduced from 50 to 10. Each of 10 patients was given a special new syringe for individual use boiled before and after injection. There was not a single instance of jaundice among these patients up to the hundred and fiftieth day of the treatment, but 1 of the 10 developed jaundice on the eighty-third day after he had received one injection at another hospital. Methionine and cystine were given by mouth to some of the patients on neoarsphenamine treatment. These amino acids were administered for a period of three to six weeks, beginning one week prior to the hundredth day of the arsenic treatment. While 50 per cent of the control patients developed jaundice on the hundredth day of the neoarsphenamine treatment, the percentage of jaundice among those treated with methionine was considerably reduced and in those in whom it occurred it did so not on the hundredth day but much later. The mode of action of the methionine is not known.

Practica Oto-Rhino-Laryngologica, Basel

7:97-152 (No. 2) 1945. Partial Index

*Clinical Symptomatology of Bronchial Adenoma. F.-R. Nager.—p. 102.
Focal Infection Due to Salivary Stone with Chronic Inflammation of Submaxillary Salivary Gland. A. Weder.—p. 134.
Central Paralysis of Superior Laryngeal Nerve. R. Luchsinger.—p. 139.

Bronchial Adenoma.—Nager reports 7 cases of bronchial adenoma. Three patients presented primary symptoms of the disease at the beginning of the third decade of their life, 2 patients did so in the course of the third decade and only 2 patients were over 40 years of age. There were 4 female and 3 male patients. Disturbances of respiration and pulmonary symptoms depend on a considerable increase in the size of the tumor and suggest that the beginning of the tumor may be traced to the end of puberty, since as a rule bronchial adenoma grows slowly. In the patients in the third decade of life the course of the disease seemed to be more rapid. Spontaneous hemoptysis occurs when the vascular tumor has infiltrated the mucosa and reached the thin epithelial layer. The first stage of bronchial adenoma, which is characterized by asthmatoid wheezing and by hemoptysis, was presented by 2 of the author's patients. The second stage, which is characterized by the symptoms of bronchial stenosis and its sequels such as atelectasis, was presented by 2 patients, and the third and fatal stage, characterized by suppurative disintegration of tissues such as empyema or gangrene of the lung, was present in 2. A favorable prognosis of the benign bronchial adenoma depends primarily on early diagnosis. The prognosis is unfavorable in late cases. Bronchoscopy is essential for early diagnosis. In the last three years it has been performed in 300 cases at Nager's clinic in Zurich without any untoward reaction. Improved or normal conditions in the lumen of the bronchi resulted in the early cases from excision of the tumor followed by electrocoagulation. Lobectomy or pneumectomy are contraindicated by the proximity to the hilus. Surgical methods of treatment are indicated for tumors within the deeper layers. Hemorrhage associated with sudden cessation of respiration and death resulted in 2 cases from electrocoagulation. It is suggested that a sudden reflex—irritation of the vagus—may produce a shocklike cessation of respiration or it may result from a tetanic bronchial spasm and may at the same time produce an ectasia of the lung capillaries associated with effusion of blood into the interstitial tissues and into the alveoli.

Schweiz. Ztschr. f. Pathol. u. Bakteriol., Basel

8:(Nos. 3 and 4). Partial Index

*Leiomyoma of Prostate. P. Rohrbach.—p. 145.
*Pathologic Anatomy of Bronchial Adenoma. A. von Albertini.—p. 162.
Quantitative Studies on Typhus Rickettsias Pathogenic for Mice: Optimal Conditions for Preparation of Typhus Vaccine: O. Rostock.—p. 185.
Struma Nodule in Ovarian Dermoid in Woman with Goiter. P. Waser.—p. 200.
New Localization of Cystic Lymphopneumatosis: Lymphopneumatosis of Mediastinum. A. Fanchamps.—p. 208.
Hyperproteinemia and Hypoproteinemia, with Consideration of Problem of Plasma Cells. Cécile Schlienger.—p. 222.
Nonhemolytic Variants of Streptococcus Pyogenes. V. Wagner.—p. 238.
Rabies by Infection of Mucous Membrane. W. Piringer.—p. 245.

Leiomyoma of Prostate.—Rohrbach investigated the occurrence of fibromuscular proliferation in the prostate of 100 men, the majority of whom were over 40. Most of the specimens were necropsy material. Leiomyomas of the prostate are nearly as frequent as adenomyomatous nodules. They are found underneath the urethral mucosa from the colliculus seminalis to the urethral orifice and consist partly of spirally arranged muscle fibers and connective tissue septums with profuse vascularization. They seem to develop at about the same time as the glandular nodules. However, the myomas seem to remain small up to the age of 65 and only then do they begin to grow considerably. This contradicts the assumption of the elicitation of glandular hypertrophy of the prostate by estrogen but speaks for the promotion of the growth of leiomyomas by this substance at the higher ages.

Pathologic Anatomy of Bronchial Adenoma.—Von Albertini presents microscopic studies on 10 cases of bronchial adenomas, of which 3 were discovered at necropsy; 7 of the patients were under clinical treatment. Four of these 7 died, but in only 2 was necropsy performed. Necropsy material from 5 cases and biopsy material from 5 cases was obtained for pathologic studies. The microscopic character of the tumor justifies the term solid adenoma. There is no justification for terms like carcinoid and basal cell carcinoma. He assumes a close relationship between bronchial adenoma and bronchial carcinoma because, histogenically, both seem to be derived from bronchial epithelium. The adenoma may possibly represent a hamartoma from supernumerary bronchial buds.

Archivos de Pediatría del Uruguay, Montevideo

16:525-551 (Sept.) 1945. Partial Index

*Tuberculous Meningitis in Infant Vaccinated with BCG Vaccine: Case. R. Gorlero Bacigalupi.—p. 545.

Tuberculous Meningitis.—Gorlero Bacigalupi reports that an infant who had received BCG vaccine within the first three days after birth, and whose parents and family were normal, developed normally up to 22 months of age, when he developed acute tuberculous meningitis and died three days later. The diagnosis was confirmed by cultures of the cerebrospinal fluid and by inoculation of the cerebrospinal fluid into guinea pigs. There was a history of contact of the infant with a tuberculous neighbor when he was 8 months old.

Book Notices

Man Against Pain: The Epic of Anesthesia. By Howard Riley Raper. Cloth. Price, $3.50. Pp. 337, with illustrations. New York; Prentice-Hall, Inc., 1945.

Here is the exciting story of man's conquest of pain, written in a popular style. From the early crude attempts at narcotizing the surgical patient by drugs or by a blow on the head the reader is introduced to methods and men who "came close" to the discovery but failed to visualize the great possibility before them. The chapters dealing with the discovery of anesthesia and the controversy arising as to the priority and credit transcend mere popular interest and constitute a thorough study of the subject. As a result of his own researches into the subject and of critical analysis of the literature the author offers the following conclusions: Sir Humphry Davy suggested the use of nitrous oxide as a therapeutic agent to produce anesthesia in 1800 but did not act on his own suggestion or stimulate any one else to act by it. Henry Hill Hickman had the idea of anesthesia clearly in his mind and tried to anesthetize animals in 1823 but never found the right agent for his purpose, never carried his experiments to the human subject and was unable to stimulate others to do so. Robert Collier in 1839 mixed mesmerism and the fumes of alcohol and got as far toward anesthesia as it is possible to get with such a mixture. Charles T. Jackson may have anesthetized himself with ether in February 1842 but failed to do anything further about it until 1846, when he suggested to Morton that it might be substituted for nitrous oxide gas. Crawford W. Long used ether in March 1842 for the removal of a tumor but was too unimaginative to realize the possibilities in etherization, let four and a half years slip by without even trying to introduce it into general surgical practice, and played no part whatever in the events which gave anesthesia to mankind. E. R. Smilie started on the right track in the spring of 1844 with his mixture of opium and ether but mistook the action of the ether for that of opium and abandoned the idea. Horace Wells in December 1844 set in motion the train of events which brought the gift of inhalation anesthesia to mankind. He conceived the idea, tested it repeatedly, announced it, explained it and demonstrated it to many, including Morton. W. T. G. Morton, acting on information from Wells and a suggestion from the chemist Jackson, substituted ether for nitrous oxide gas and gave a demonstration in 1846 that served to announce anesthesia to the world.

The author is not surprised that Long, Morton and Wells have all been called discoverers. Long is the discoverer if one considers only the matter of priority. Morton is the discoverer if one considers only the question of who introduced anesthesia, and Wells is the discoverer in the sense that he found, recognized, demonstrated and acclaimed it and started it on its way to being introduced by Morton. Thus the author accords the palm of the true discoverer of anesthesia to Horace Wells. The author's conclusions are based partly on such facts as could be ascertained, partly on a skilful evaluation of the characters of the men involved and on a critical analysis of the existing literature on the subject of controversy. The author is not to be considered a Horace Wells partisan but rather a conscientious student of the history of the discovery of anesthesia.

DDT for Institutions: A Report on the Methods of Preparations and Use of DDT for Insect Control. Research Department, Hospital Bureau of Standards and Supplies, Inc. Paper. Price, 50 cents. Pp. 12. New York, 1945.

A twelve page mimeographed pamphlet has been prepared on DDT by the Research Department of the Hospital Bureau of Standards and Supplies. This pamphlet is bound and perforated for filing. The report has been checked by the Department of Agriculture for accuracy. Discussion is brief and concise and is pointed toward the practical application of insecticides containing DDT in hospitals. The information in this report will also be of value to superintendents of other types of institutions, homes and office buildings. Nonmember hospitals can purchase copies of the pamphlet. Preparation, effectiveness, usable forms, precautions, government control, history, summary and selected bibliography are the important divisions of the subject matter.

Black Widow: America's Most Poisonous Spider. By Raymond W. Thorp and Weldon D. Woodson, B.S., M.A. With a foreword by Emil Bogen, M.D. Cloth. Price, $3. Pp. 222, with illustrations by the authors. Chapel Hill, N. C.: University of North Carolina Press, 1945.

Most spiders are inoffensive and indeed useful creatures which contribute to the control of flies and other disease carrying insects and offer artistic and moral exemplars by their clever and indefatigable weaving. The particular species which forms the subject for this book, however, stands convicted by the evidence here marshaled against her as a vicious biter whose potent poison has brought suffering to thousands and death to hundreds of our fellow Americans.

The book opens with a review of the popular folk lore and literary references to spiders, an account of the "tarantula" and other reputedly dangerous spiders, leading to the conclusion that "the most universally distributed 'dangerous' spiders are those of the genus Latrodectus, and it is they, more than all others, which are responsible for serious cases of spider bite."

The black widow spider has been observed in each of the forty-eight states, and similar species are found in all of the six continents. During the past two centuries more than twelve hundred bites from this arachnid have been described by lay and medical observers. The striking clinical phenomena which result are detailed and amplified by the results of experimental bites on animals and man. Diagnosis is usually not difficult if the condition is considered, and effective symptomatic and specific treatments are available.

The sensational publicity given the black widow and her role in suicide, murder and other medicolegal matters is illustrated by the experiences of the authors. The appearance of the spider, her multiplication and life cycle, her diet and sites of predilection for her ungainly webs, and the artificial and natural factors in her control are clearly presented.

Extensive appendixes contain previously unpublished lay and medical case reports, chronological and geographic tables of the occurrence of spider bites, a large and representative bibliography and a detailed index. Despite the popular style of presentation, this book contains a wealth of authoritative information on the subject which should be of interest to all who may come in contact with this nefarious character.

The Psychoanalytic Study of the Child: An Annual. Anna Freud, Heinz Hartmann, M.D., and Ernst Kris, Ph.D., managing editors. Volume 1. Cloth. Price, $6. Pp. 423, with 3 illustrations. New York: International Universities Press, 1945.

This edition represents the first volume of a contemplated annual production under the same title. It is an Anglo-American venture and the managing editors are Anna Freud, Heinz Hartmann and Ernst Kris. The contents consist of assembled papers of British and American writers relative to numerous aspects of child psychology. This book, as well as future editions, is primarily intended as a guide to specialists in the field of child study, but other students in allied fields will find it of great value in understanding behavior problems in all ages. As stated on the cover, "The future of our society will depend on the capacity of our children to withstand the ever mounting tensions in the world of today and tomorrow. To guide the formative years of this generation is the critical task facing those who have assumed this responsibility. Adequately to do this requires both a genuine understanding of the mental and psychic development of the child, as gained through psychoanalysis, and the knowledge of how to translate these insights into practice." In this volume child therapy and child guidance are represented by extremely interesting and comprehensive case presentations. Many of the contributors are well known for their progressive insight into emotional problems of children, and the subjects chosen for publication are well selected.

The book contains five chapters, on genetic problems, problems of child analysis and child development, guidance work, problems of education and surveys and comments. Unfortunately an index is not included, and many of the papers have bibliographies following the text which are not alphabetically arranged and are therefore somewhat confusing to the reader who wishes to investigate the references given. However, this book helps to fill a real need, and these are merely format criticisms which may be easily corrected in future editions.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

VITAMINS DURING PREGNANCY

To the Editor:—What are the recommended dosages (not the minimum daily requirements) for the vitamins and minerals during the third trimester of pregnancy? What are the greatest amounts of each vitamin and mineral that could be taken during this period without causing any danger to the mother or to the fetus? M.D., New York.

Answer.—The Food and Nutrition Board of the National Research Council has established Recommended Dietary Allowances for the principal nutritional essentials. These are given for various age groups, states of physical activity, pregnancy and lactation. During pregnancy the recommendations apply to the latter half. The quantities recommended are 6,000 units of vitamin A, 1.8 mg. of thiamine, 2.5 mg. of riboflavin, 18 mg. of niacin, 100 mg. of ascorbic acid, 400 to 800 units of vitamin D, 15 mg. of iron, 1.5 Gm. of calcium from food sources and the same for phosphorus (greater quantities if from pure chemical compounds) and 85 Gm. of protein. The recommended amounts of the lesser minerals are not stated quantitatively, but 0.2 to 0.3 mg. of iodine daily is important. This can be secured from the regular use of iodized salt. A good diet normally will supply sufficient copper. Vitamin K is often given to the mother toward the end of pregnancy in amounts of 1 to 2 mg. daily.

At the present time knowledge of danger from use of vitamins in excessive amounts under practical circumstances is limited to vitamin D. The dosage of this vitamin should not greatly exceed 400 to 800 units daily, since larger quantities reduce the efficiency in promoting calcium absorption and much higher levels may withdraw calcium from the bones. Iodine in excessive amounts may cause skin reactions, and it is advised that the 2 mg. dosage of vitamin K be not continued for a period exceeding four weeks.

HUMAN TUBERCULOSIS IN LEMURS

To the Editor:—I would appreciate knowing whether lemurs are susceptible to human tuberculosis. A. F. Liber, M.D., Amsterdam, N. Y.

Answer.—Herbert Fox examined at necropsy 86 lemurs and lemuridae. Twenty-three of these showed tuberculosis, an incidence of about 25 per cent. Tuberculosis of both respiratory and alimentary origin were found, but the latter was more frequent. The disease, nodular caseous or confluent caseous in type, was found in the lungs, liver, spleen and lymph nodes. The intestine, kidney and serous membranes were less often affected. No fibrotic lesions were encountered. Cobbett cultured human type tubercle bacilli from two ringtailed lemurs that had acquired the disease spontaneously. He also readily infected lemurs with bovine type tubercle bacilli experimentally. The lemur shares with primates an equal and definite susceptibility to both the human and the bovine type of tubercle bacillus.

References:

Fox, Herbert: Disease in Captive Wild Mammals and Birds, Philadelphia, J. B. Lippincott Company, 1923.
Cobbett, Louis: The Causes of Tuberculosis, London, Cambridge University Press, 1917.

MONILIA ALBICANS INFECTIONS

To the Editor:—Is there any effective treatment of infection with Monilia albicans involving the mouth, throat and chest? J. R. Crowder, M.D., Sullivan, Ind.

Answer.—Infections with Monilia albicans are seldom primary in nature but usually occur because the resistance of tissues is diminished by other factors such as vitamin deficiencies, infections or general debility. Treatment, therefore, should be first directed to correcting the underlying cause or causes. Specific treatment is unsatisfactory. Potassium iodide is usually advocated especially when the bronchi and lungs are involved, but there is little or no evidence of its specific value. For infections involving the oral mucous membrane mild alkaline mouth washes or solution of *gentian violet (1: 10,000)* have been used, but again without evidence of specific effect. The same may be said for vaccine prepared with Monilia.

TRICYCLE RIDING FOR FLAT FEET

To the Editor:—In the treatment of flat feet in children, would riding a tricycle with pedals shaped so that the child would have to toe in be helpful? Is there any such pedal on the market? P. J. Imperato, M.D., Brooklyn.

Answer.—There is no special pedal for the correction of flat feet. However, riding a tricycle is good exercise for children and does strengthen the foot. The most important exercise for correction of the foot is correct walking. To hold the foot in the normal position the inner side of the heel should be raised about ⅛ inch and a comma bar which is about ¼ inch higher on the outside should be placed under the anterior part of the foot.

Reference:

Hauser, Emil D. W.: Diseases of the Foot, Philadelphia, W. B Saunders Company, 1939.

IMPOTENCE FOLLOWING ENCEPHALITIS

To the Editor:—How long must treatment with testosterone propionate in a case of impotence following encephalitis be kept up before seeing results? Is 50 mg. three times a week the proper dose? M.D., Michigan.

Answer.—It is questionable whether the administration of testosterone propionate for impotence which follows encephalitis will be beneficial unless there is an atrophy of the testes. Twenty-five mg. of this material three times a week is a large enough dose to give. If any results are to be obtained they should be noticed after six weeks of therapy.

SPONTANEOUS SUBARACHNOID HEMORRHAGE

To the Editor:—An unmarried woman aged 43, a clerk in a store, was apparently well until three months ago, at which time she consulted her local physician. The family did not know what diagnosis was made, but the patient was appurently able to continue her work. Four days prior to admission to the hospital she arose in the middle of the night, started to cross the room and collapsed. She was found lying on the floor and was placed in bed. Her chief complaints at this time were severe headache and slight weakness of the left side. Following a convulsion she was admitted to the hospital. Temperature on admission was 99 F., pulse rate 62 and respiratory rate 16. A spinal puncture was performed immediately; the spinal fluid was grossly bloody but did not seem to be under increased pressure. However, 30 cc. of the spinal fluid was withdrawn, resulting in some diminution of the headache. Throughout the period of hospitalization considerable sedation in the form of codeine tablets hypodermically were required because of the severe headache. Blood pressure was 134/76. There was no nuchal rigidity at any time. The following day a divergent squint was noted. The eyegrounds showed no papilloedema or arterial beading. On the third day the spinal puncture was repeated. The fluid was practically unchanged in gross appearance (still bloody); the initial pressure was 170, with a rapid rise and fall in response to jugular pressure. An additional 30 cc. of fluid was withdrawn. From the second day to the time of death the temperature was almost consistently 101 F., the pulse rate 60 to 80 and the respiratory rate 14 to 18. Urine specimens were normal. Hemoglobin was 85 per cent, red blood cells 4,460,000, white blood cells 20,300, polymorphonuclear leukocytes 93 per cent. Hinton and Kolmer serologic tests (two) of the blood were normal, but of both spinal fluid specimens were 4 plus. There was no apparent increase in the white blood cells in the spinal fluid. The headache persisted and several convulsions occurred during the ten days in the hospital. Death occurred shortly after a convulsion during which the systolic blood pressure was 156. There is no definite history of hypertension or syphilis. M.D., West Virginia.

Answer.—The picture described is one of spontaneous subarachnoid hemorrhage due to a rupture of an aneurysm at the base of the brain. These aneurysms are not syphilitic and are usually due to a congenital weakness of the wall of the blood vessel. The site of rupture is frequently one of the vessels of the circle of Willis, either anterior or posterior communicating arteries. The divergent squint would indicate that the original rupture occurred at the site of the oculomotor nerve. In many instances hypertension is associated with the rupture of the aneurysm. In no instance should morphine or its derivatives be given in a case of this kind because the drug masks or produces symptoms like medullary compression. The ideal treatment is 50 per cent glucose intravenously or repeated daily spinal punctures.

DIET SHEETS

To the Editor:—Could you kindly tell me if there is any company from which I could purchase or obtain satisfactory diet sheets for various disease conditions? Jacob Levine, M.D., Bronx 58, N. Y.

Answer.—Diet sheets may be secured from a number of food manufacturing concerns. The completeness or quality of the lists must be judged by the physician. Some of the better known companies having special diet lists available are Chris

Hansen's Laboratory (Junket), Little Falls, N. Y.; the Dietene Company, Minneapolis; Kellogg Company, Battle Creek, Mich.; Ralston-Purina Company, St. Louis (allergy diets); Eli Lilly, Indianapolis (diabetic diets). The Metropolitan Life and John Hancock Insurance Companies have reducing diet lists. The American Institute of Baking, Chicago, has some special diet materials.

The Personal Diet Service, 145 West Forty-Fifth Street, New York 19, maintains a high class special diet service supplying prepared sheets. The American Dietetic Association of Chicago will soon have available a new Diet Therapy Handbook which will contain much pertinent information but no prepared sheets, of course.

HARELIP IN TWINS

To the Editor:—A woman aged 31 gave birth to twins. The first boy had a harelip on the right side and weighed 7 pounds 2 ounces (3,230 Gm.). The second boy had a harelip on the left side and weighed 5 pounds (2,268 Gm.). Is this what would be expected in a birth of this kind? These boys had separate amniotic sacs with one placenta.

Bert Anderson, M.D., Victoria, Kan.

Answer.—The question is whether or not one would expect both members of a pair of twins to have harelip if one of the pair does. Several issues are involved. First, is there any evidence of a hereditary basis for harelip? Harelip occurs sporadically in some families without any evidence of a familial tendency. Yet enough pedigrees exist which strongly suggest that hereditary factors do play a role in a majority of instances. Several pedigrees show 6 or 7 cases of harelip in two or three generations. This is a much higher incidence than would be expected if environmental factors alone were responsible. Furthermore, occurrences among twins also suggest that genetic factors frequently play a role.

Whether or not both members of a pair of twins would be expected to show harelip if one does depends to some extent on the type of the twin set that is involved. If the twin set is of the fraternal type the probability for either member of the set is the same as for any child born singly to that family. If the twins are of the one egg type the probability is great that the second member will show the abnormality if the first one does. Not enough twins with harelip have been properly diagnosed for zygosity to give exact information, but indications are that even among one egg twins one member may be free from harelip while the other one shows the defect.

The mirror imaging reported for the twins in question introduces an unsettled problem. One egg twins do tend to show mirror imaging to a greater degree than do two egg twins. Therefore, since the twins in question are of the one egg type, it is not surprising to find one member with a harelip on the left side and the other with the defect on the right.

There are questions relative to differences in incidence among sexes, mode of inheritance of harelip and the like which are of interest, but a discussion of such questions would go too far afield.

It is important to have all cases of harelip and similar defects reported in the literature. This is true especially if the defect occurs among twins or reappears in several generations of a family.

FRIGIDITY AND THE CLITORIS

To the Editor:—What is the general opinion among gynecologists as to the value of operations on the clitoris for frigidity or reduced libido? If there is an operation done for this condition what is it?

Frank E. Hyde, M.D., Beaufort, N. C.

Answer.—Operations on the clitoris or elsewhere have practically no effect on frigidity or reduced libido. The subject of frigidity has interested gynecologists, psychiatrists and psychoanalysts, who agree that in all cases of frigidity there is a large psychic element. Likewise all physicians believe that reactions of envy of men and fear of damage to the genitals play at least some part in the psychology of every girl. In many cases these are the dominating factors in personality development.

The proportion of women who derive little or no pleasure from sexual intercourse is high and has been variously estimated to be from 35 to 75 per cent. Some women not only experience no pleasure but actually suffer pain and revulsion. Greenhill (Office Gynecology, ed. 4, Year Book Publishers, 1945, p. 110) says "I should like to emphasize a point about which almost nothing has appeared in gynecologic literature. This is that in women there are actually two sexual organs. The first is the clitoris, which plays the dominant role in childhood and in masturbation during adulthood. The second organ is the vagina, which psychologically is unimportant until puberty. Whereas in the child the clitoris can and does give sexual satisfaction, in the normal adult woman it is the vagina which is the principal sexual organ. In frigid women, however, the transfer of sexual excitement and satisfaction from the clitoris to the vagina does not take place. Hence such women possess the infantile erotic zone and not the adult one."

Edmund Bergler (*Psychiat. Quart.* **18**:374 [July] 1944) maintains that a typically frigid woman suffers not from a deficiency of the libido but from a neurosis; that is, an illness of the unconscious. For this reason endocrine therapy is unsuccessful in typical cases.

Knight says "True frigidity (due to emotional factors) requires psychologic investigation following gynecologic checkup, to determine the degree of disturbance and the dynamic psychologic factors operating in the individual case. The gynecologist may attempt reeducation and reassurance, and, if these measures are ineffective, psychotherapy by a psychiatrist or psychoanalyst (preferably a man) should be recommended. Many cases of frigidity carry a good prognosis with appropriate psychotherapy. Some cases, however, are too deeply rooted in neuroses or character disorders, or desire for correction is too slight, for treatment to be effective."

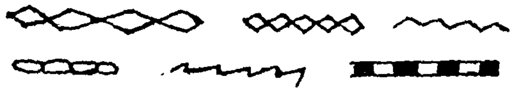
In view of the extent of the psychic factor in frigidity, operations on the clitoris are not justified.

VISUAL FATIGUE IN AUTOMOBILE DRIVER

To the Editor:—Long distance highway driving appears to tire the eyes of many drivers, and the fatigue is complained of more rapidly when the car has to follow a straight black line. This straight line leads the eye on and on, with no rest period. Has any modification of this line been tried? I should like to suggest that breaking the continuity might be helpful. Perhaps something like one of the accompanying sketches, although it would probably be more expensive than the one in use now.

Amy Weiss, M.D., Chicago.

Answer.—As far as is known, the suggestion made in the query has never been tried, but it is questionable whether following the line is a factor of any import as there are so many aspects to the problem. In all likelihood the muscle balance of the individual driver plays a greater role than do the majority of the extraneous factors. It would be of great interest to examine the ocular apparatus of drivers that complain of such fatigue in contrast to others who do not have that complaint.



Suggested modifications of continuous line.

DIAGNOSIS OF UNDULANT FEVER

To the Editor:—In Queries and Minor Notes in The Journal, Jan. 5, 1946 there is a question on the diagnosis of undulant fever. The detailed reply is unusually adequate and factual with two exceptions:

The statement that the "opsonocytophagic tests give about 3 per cent of falsely negative reactions in either the acute or chronic forms" is confusing, since it is not possible to have a "negative" opsonocytophagic test. This test is purely a relative one indicating nothing more or less than the phagocytic activity of the patient's polymorphonuclear cells at the time the test is made. A reading showing definite phagocytosis in 0 cells, moderate phagocytosis in 0 cells, slight phagocytosis in 0 cells and no phagocytosis in 25 cells too often is referred to as negative but indicates only a lack of measurable resistance to Brucella infection. Conversely a high reading, such as 19-6-0-0, cannot be called a positive test but rather one indicating a high degree of resistance. The use of the term positive or negative is particularly misleading, since the low reading (so-called negative) is usually obtained in the presence of actual infection, indicating a lack of resistance to the existing infection. If the intradermal reaction is positive and the phagocytic index is low (anything from a so-called negative to a moderate degree of resistance, such as 5-7-8-5), and if the patient exhibits symptoms presumably referable to brucellosis, a tentative diagnosis is justifiable even in the presence of negative cultures and negative blood agglutination reactions.

The other point which should be brought into question is the statement that "brucellergin intradermal tests give about 10 per cent falsely negative reactions during the initial febrile stages and are slightly more reliable in chronic illnesses." It seems a mistake to describe the intradermal test under the term "brucellergin intradermal test," since brucellergin cannot be said to be a fully acceptable skin testing antigen. Angle, Algie, Baumgartner and Lunsford tested a group of 160 inmates of a county farm, using brucellergin intradermally in one arm and heat killed vaccine in the other arm simultaneously. Positive reactions occurred in 44 brucellergin tests (27 per cent) and in 89 heat killed vaccine tests (54 per cent). The two skin testing materials were used in the same patients at the same time. The occurrence of twice the number of positive reactions to heat killed vaccine as to brucellergin would seem to indicate that heat killed vaccine is more sensitive than brucellergin as a skin testing antigen (Harris, H. J.: Brucellosis [Undulant Fever], Clinical and Subclinical, New York, Paul B. Hoeber, Inc., 1941, p. 154).

Harold J. Harris, New York.

The Journal of the
American Medical Association
Published Under the Auspices of the Board of Trustees

Vol. 130, No. 9 Chicago, Illinois March 2, 1946
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PRIMARY LUNG TUMORS

RALPH ADAMS, M.D.
Boston

Except for 1 instance of myxochondroma and 6 cases of bronchial adenoma, this report is concerned with primary carcinoma of the lung. A diagnosis of primary carcinoma of the lung was established microscopically in 157 consecutive cases at the Lahey Clinic in the fifteen year period ended Dec. 31, 1944. The material here presented is selected only on a basis of microscopic examination because it is the only standard of reference which avoids confusion and limits controversy. A clinical diagnosis of carcinoma of the lung was made 199 times during the same period. Most of these clinical diagnoses can be accepted as accurate beyond a reasonable doubt. Terminal cases, cases judged inoperable on the basis of roentgenologic evidence and cases in which diagnostic measures failed to yield a positive pathologic report constitute the unproved portion of this group. The total figures showing 157 cases microscopically confirmed to 199 clinically diagnosed give a ratio of 1 : 1.26, or 78.9 per cent. Determination of the ratio for each year separately demonstrates that there has been little variation in the tendency to pursue the diagnosis to a morphologic answer.

Examination of the cancer statistics can best follow the line of analysis that has proved worth while with cancer of other organs, that is, on the basis of histogenesis. The way has been well marked by investigations of cancer of the rectum, cervix and breast. The problem in cancer of the lung differs only in that figures for arrest of disease must await the passage of another fifteen years. In the developmental period of pulmonary resection for cancer, lasting approximately from 1933 to 1940, the question of survival rate was partially obscured by the considerable mortality attendant on unperfected technical management, limited experience and the well remembered sequelae of bronchial leakage, pleural infection, atelectasis, chest wall mutilation and physiologic invalidism. The last four years bear witness to the practical disappearance of these complications, and, to a much larger extent, length of survival can be determined solely in terms of whether the cancer was eradicated or recurred.

Meanwhile, correlations were sought which are helpful to the solution of the problems at hand. A study of these cases presents nothing new or startling, but from it the following data have emerged.

The frequency of cancer of the lung, compared with all other cancer, is between 6 and 8 per cent. Age susceptibility is greatest between 40 and 50 years and, as indicated in table 1, the incidence follows the age incidence of malignant disease in general. The lesion was on the right side in 87 and on the left side in 70 cases.

There was a male preponderance of 128 to 29, or 81.5 per cent. Variations in the subgroups are of interest. One third of the cases of adenocarcinoma occurred in women, while either epidermoid cancer or the highly malignant oat cell cancer would appear to be almost exclusively a disease of the male.

Necropsy established the diagnosis in 5 cases (3.2 per cent), indicating need for even greater efforts to make an antemortem diagnosis (table 2). Particular attention is called to the 2 cases of metastatic carcinoma of the brain for which craniotomy was performed under the erroneous diagnosis of primary brain tumor. They give point to the facts that predominating signs and symptoms of brain tumor may obscure the underlying diagnosis of pulmonary carcinoma and that roentgenograms of the chest might wisely be included in the clinical investigation of every patient suspected of harboring a brain tumor. Adenocarcinoma of the lung is especially likely to be followed by cerebral metastases and yet in the lung is frequently "silent" because of peripheral location.

SYMPTOMATOLOGY AND DIAGNOSIS

Analysis of the symptomatology of 63 cases, found inoperable at the time diagnosis was made, shows by hindsight that a warning sign was given early in nearly all of these cases. Lack of early diagnosis was caused most often by failure of the patient to seek medical advice or by failure of the physician to consider seriously the complaint and to undertake proper diagnostic measures. The symptomatology of cancer of the lung is largely explained by bronchial encroachment, with varying degrees of obstruction or ulceration in that structure.

One hundred and forty-six patients (93 per cent) exhibited a cough, typically the first symptom, initially dry but soon productive of thin mucoid and later purulent sputum. Pain, or chest discomfort, was the second most common symptom, a complaint recorded for 85 (54 per cent) of these 157 cases. Its severity varied from a sensation of tightness in the chest to that of mild substernal oppression in intrabronchial lesions, through the many grades of pleurisy in cases of pleural involvement on to the terrible intractability associated with extension to the superior pulmonary sulcus and invasion of the brachial plexus. Sputum was present in 83 cases (53 per cent). It was only mucoid in 44, and these were the earlier cases, mostly, in which increased bronchial secretion caused by the cancer remained uninfected. It was purulent in 39 cases, indicating the presence of bronchial obstruction or secondary infection.

From the Department of Surgery, the Lahey Clinic.

Ulceration of the bronchial mucosa or tumor surface led to hemoptyses in 69 cases (44 per cent) in this series. The extent of bleeding varied from streaking or occasional spotting to actual hemorrhage. Hemoptysis of some degree every day over a period of time is one of the most positive symptoms of pulmonary carcinoma. Intermittent blood streaking is more commonly encountered, however, than is the former. One is impressed by the number of patients with this disease who readily admit cough, pain or sputum but at first deny "coughing-up of blood." Yet many will confess blood streaked sputum on one or more occasions when specifically cross questioned as to this point. This observation is probably explained by psychologic attitudes rather than by intentional concealment. To the lay mind the cough may be self explained as a "cigaret cough" and the chest wall discomfort as an attack of "pleurisy," neither of which is considered "serious." Blood spitting, on the other hand, is recognized as a sign of "serious disease" such as tuberculosis or cancer and, if only minimal in amount or sporadic in occurrence, is likely to be forgotten.

TABLE 1.—*Distribution of Carcinoma of the Lung According to Age and Sex*

Age, Years	Epidermoid		Adenocarcinoma		Oat Cell		Undifferentiated		Unclassified		Total		Total
	M	F	M	F	M	F	M	F	M	F	M	F	
20-29	..	..	..	..	..	..	..	..	..	..	..	..	..
30-39	1	2	2	..	..	..	..	1	1	..	4	3	7
40-49	15	1	3	1	4	..	3	..	6	2	31	4	35
50-59	46	1	9	..	1	1	7	4	9	5	72	11	83
60 up	16	2	1	4	1	..	3	..	..	5	21	11	32
Subtotal...	78	6	15	5	6	1	13	5	16	12	128	29	157
Total......	84		20		7		18		28				
Percentage	53.5		12.7		4.4		11.4		17.8		81.5	18.5	100

Partial encroachment to the point of incomplete obstruction, with production of a wheeze, occurred in 22 cases (14 per cent). The fleeting nature of this symptom frequently allows it to escape detection, as it disappears when bronchial obstruction becomes complete. Demonstration of localized emphysema and a unilateral wheeze, as was possible in a few of these cases, practically establishes a diagnosis of bronchial obstruction. In the roentgenograms of 26 patients (16.5 per cent) the findings were those of a tumor mass. Peripheral collapse from obstruction sufficient to prevent aeration was observed in 63 cases (40 per cent). Collapse with associated bronchiectasis from blocked egress of secretions was found in 34 cases (22 per cent). Sixteen patients (10 per cent) had an abscess cavity in the collapsed lung tissue as a result of pulmonary suppuration distal to bronchial occlusion or to actual tumor necrosis. The roentgenologic appearance of an abscess caused by central necrosis of tumor tissue is sometimes quite diagnostic, the walls of the abscess being very thick. Instead of air above a fluid level, one often sees the shadow of an ovoid mass projecting upward into the area of rarefaction. Recurrent attacks of bronchitis, pneumonitis or so-called grip frequently appeared in the clinical picture, as a reaction to the infection almost invariably a sequel to bronchial obstruction.

The five most common symptoms of cancer of the lung encountered in this group of cases, therefore, were cough, pain, sputum, hemoptysis and wheeze (table 3).

The frequency of a sixth symptom, dyspnea, recorded in 27 cases (17 per cent) was regarded with surprise until correlated with the occurrence of pleural effusion (26 cases, or 16.5 per cent). Nearly always the fluid was bloody, and microscopic examination of the stained sediment revealed carcinoma cells in 5 instances (3 per cent). Pleural effusion usually is an indication of extension or metastasis and only rarely an early sign. Nerve involvement similarly is an indication of lateness in the disease, whether exhibited by the paradoxical diaphragm of phrenic paralysis, the hoarseness and aphonia of recurrent nerve invasion, Horner's syndrome of sympathetic chain interruption or pain of cancer encroaching on the nerves of the intercostal spaces or brachial plexus. Other presenting symptoms and signs of extension of metastasis, such as weight loss, weakness, palpable nodes or involvement of other organs, either may make obvious or help to obscure the primary diagnosis, but they are of small importance from the standpoint of early diagnosis and favorable results of therapy. They indicate a situation which has already become hopeless.

Beyond a careful history and physical examination, the methods of diagnosis available for more complete study include sputum examination, roentgenography, bronchoscopy, thoracentesis, biopsy of suspected nodal metastases, bronchography, pneumothorax, thoracoscopy and lung aspiration.

Sputum examination should always be done to exclude tuberculosis. In this series of cases study of the sputum for carcinoma cells has been done only occasionally and with little enthusiasm and, perhaps in consequence, a positive diagnosis has been made by sputum examination in but 3 cases. The proper preparation of a specimen for microscopic examination is tedious and time consuming. The likelihood of any individual specimen containing cancer cells has been considered small. The possibility of error in interpretation of the many bizarre cells ordinarily found in sputum has limited confidence in the findings. However, there has been a recent resurgence of interest in sputum examination and, as a result of better technic and greater experience, better results may be obtainable.

TABLE 2.—*Diagnosis of Carcinoma of the Lung Established Only at Necropsy*

Case	Type	Clinical Diagnosis	Reason for Failure to Make Clinical Diagnosis
1	Epidermoid	Carcinoma, ? primary source	Moribund on admission; diagnosis suggested by roentgenogram; age 30+, 1936
2	Epidermoid	Myelogenous leukemia	Advanced leukemia; incidental carcinoma of right lung; age 60+, 1939
3	Unclassified	Brain tumor	Brain tumor metastatic at craniotomy; no chest symptoms or roentgenograms; age 60+, 1941
4	Epidermoid	Advanced carcinoma, ? primary source	Too ill for study; diagnosis suspected by roentgenogram; age 50+, 1942
5	Oat cell	Brain tumor	*Craniotomy; no chest symptoms* or roentgenograms; neck nodes not palpated; age 40+, 1944

A diagnosis of primary lung cancer was made by roentgenography or stated as a positive suspicion in 152 cases (96.7 per cent) and it was missed in 2 (1.3 per cent); 3 patients (2 per cent) were not examined (table 4). The reasons for no roentgenologic examination are stated under cases 2, 3 and 5 in table 2. Each of the 2 frankly misdiagnosed cases was called tuberculosis until eventually corrected by examination of tissue obtained at thoracotomy in 1 instance and bronchoscopy in another.

The radiologic features suggestive of pulmonary carcinoma are the shadow of a central or peripheral tumor mass, localized expiratory emphysema, mediastinal shift with a large amount of emphysema causing shift away from the lesion occasionally but more often toward the side of the lesion because of bronchial obstruction and atelectasis, the signs of collapse, abnormal behavior of the diaphragm and signs of mediastinal and pleural infiltration. The value of careful fluoroscopy and lateral views, in addition to posteroanterior films, cannot be overemphasized as a part of the study of problems in chest diagnosis.

TABLE 3.—*Symptomatology in 157 Cases*

	Cases	Per Cent
Cough	146	93
Pain	85	54
Sputum	83	53
Hemoptysis	69	44
Wheeze	22	14

Bronchoscopy is a helpful confirmatory procedure for lesions lying near the hilus and encroaching on major bronchi. Analysis reveals that bronchoscopy was done in 122 cases (77.7 per cent), 109 (69.4 per cent) being positive and 13 (8.3 per cent) being negative. Bronchoscopy was not done in 35 cases (22.3 per cent). A positive diagnosis was thus obtained in 89.3 per cent of the 122 cases in which bronchoscopy was carried out (table 5).

Although bronchoscopy is a relatively simple and nonhazardous procedure, it should be used selectively on a basis of seasoned clinical judgment and not employed routinely. The characteristics as shown by roentgenograms are often of value in indicating the help that may be obtained by this procedure. Rarely was a tumor seen bronchoscopically when its shadow was circular on the roentgenogram. Tumors casting such shadows nearly always are peripheral and arise beyond the major bronchi, no matter how near the midline they may look on the posteroanterior film. A lateral roentgenogram will often delineate their peripheral position in respect to the hilus. Probably the reason for their roundness is that they lie far enough peripherally to encounter equal resistance from lung parenchyma on all sides. Even tumors with the point of origin in a primary bronchus may be overlooked if growth has been outward into the hilus instead of inward into the lumen. For these reasons the presence of some degree of bronchial obstruction is almost prerequisite to diagnostic success with the bronchoscope. Of the 13 cases in which bronchoscopy was negative there were peripheral tumors in 7, an upper lobe lesion was present in 1 and in 5 cases there was no bronchial obstruction.

Suspicion of carcinoma of the lung is not in itself an indication for bronchoscopy, and many legitimate reasons exist for its omission, just as there are definite indications for its performance. Among the reasons for omission are biopsy of metastases (15 instances), advanced state of disease (8), clinical evidence sufficient for operation without it (6), a missed diagnosis clinically (3), carcinoma cells in aspirated fluid (2) and the patient's refusal (1).

Pleural effusion, as occurred in 26 cases (16.5 per cent), may be aspirated and centrifuged and the sediment stained and searched for carcinoma cells. Such cells were found in 5 instances. The thoracoscope, in conjunction with preliminary pneumothorax, is a helpful adjunct at times. Usually, if decision regarding operability cannot be made short of intrapleural visualization, open thoracotomy is believed preferable. The addition of pneumothorax alone, followed by roentgen examination, occasionally gives the required information concerning nodulation of the pleura or masses in the mediastinum. Lung aspiration with a punch biopsy needle is applicable only in the case of a peripherally placed tumor. In the few instances used, it has not led to any complications. However, hemorrhage, infection and outgrowth of a tumor along the needle tract are potential complications with this procedure which cannot be lightly disregarded. Only rarely does one require confirmation by lipiodol injection of localized bronchiectasis beyond a tumor, and much care should be exercised in its use. If the oil should be trapped by the tumor, pneumonitis will be accentuated. Experience with bronchiectasis has indicated the wisdom of waiting several weeks after bronchography before performing lobectomy to avoid the increased incidence of postoperative atelectasis which otherwise may occur. Such a time lag is unjustifiable in the treatment of carcinoma. Except in special cases, bronchography is best omitted from study of carcinoma of the lung.

Biopsy of palpable supraclavicular or axillary nodes or other metastases permitted microscopic confirmation of the diagnosis in 26 instances (16.5 per cent). The axillas and especially the supraclavicular fossae should be examined with particular care and any palpable node submitted to biopsy. Nodes lying deeply beneath the medial end of the clavicle are among the earliest involved and are very likely to escape detection unless deliberately searched for.

NONMALIGNANT TUMORS

The symptomatology and diagnostic features of the group of 7 nonmalignant tumor cases are very similar to those of the cancer series. One occurred in the third, 3 in the fourth and 3 in the fifth decade. All 7 patients were women. The lesion was on the right side in 4 and on the left side in 3 cases. All were microscopically confirmed. Five patients had a cough. Three had some chest pain or discomfort. Five had hemoptysis. Two had a wheeze. Two had mucoid sputum, and in the remaining 5 the sputum later became purulent. By roentgenograms 1 had combined signs of collapse and effusion. Four had collapse and bronchiectasis. In 1 the shadow of a tumor was visible. One had respiratory mediastinal shift and localized emphysema. The diagnosis of tumor was suggested by roentgen examination in all the cases.

TABLE 4.—*Roentgenologic Examination in 157 Cases*

	Cases	Per Cent
Diagnosis suggested	152	96.7
Diagnosis missed	2	1.3
Not examined	3	2.0

TABLE 5.—*Bronchoscopic Examination of 157 Cases*

	Cases	Per Cent
Positive	109	69.4
Negative	13	8.3
Total examined	122	77.7
Not examined	35	22.3

Bronchoscopy was positive in 5, in 1 the tumor was frankly missed and in 1 resection was justified without bronchoscopy. Bronchoscopic removal sufficed in 2.

Five required pneumonectomy. All 7 patients are living and well from 1933, 1934, 1935, 1936, 1941, 1942 and 1943 respectively.

Certain differences in these cases are noteworthy. Four had a history of at least two years' duration when first seen. General signs of morbidity were less than expected in carcinoma after similar duration. Five of the 7 patients had frequent small hemoptyses. The lung of at least 2 was functionally destroyed, and yet the patients looked fairly healthy and gave histories more consistent with chronic hemorrhagic bronchiectasis than with advanced carcinoma. The striking difference, however, is found in the results of treatment, to be discussed later.

TREATMENT

Efforts to control satisfactorily or to arrest advanced and inoperable carcinoma of the lung have been almost completely unsuccessful. Roentgen therapy has been abandoned as a curative measure. The palliation afforded is limited by the established radioresistance of this type of cancer. Temporary benefit has been obtained in several cases of the oat cell, high grade epidermoid and undifferentiated types. Noticeable reduction in the rate of fluid secretion in certain cases of pleural effusion has been observed, but rarely has the palliation lasted for more than six months. Radium has shown no advantage over x-rays, and technical considerations in its application make roentgen therapy distinctly preferable to radium.

Table 6.—*Results in 157 Proved Cases (100 per Cent)*

Resected patients, proved:		49 (31.2%)
Living and well	14 (8.9%)	
Living with recurrence	4 (2.5%)	
Death later	23 (14 6%)	
Hospital death	8 (5.1%)	
Nonresected patients,		108 (68.7%)
Proved but inc		
Proved but th		

The percentage of inoperability at the time of diagnosis is discouraging. Sixty-three (40 per cent) of this group (table 6) were considered inoperable when first seen, 59 because extension or metastasis had occurred, and 4 for other reasons. These were advanced age and poor general condition, high grade of malignancy, failure to make a clinical diagnosis, and the patient's refusal. No patient was refused operation on the basis of age alone, however. The oldest patient was 72 at the time of pneumonectomy and is still working in his office a few hours daily at age 76, four years later.

Proof of extension was established in all the cases so classified, whether by symptoms and signs, biopsy of metastases or other tests. Careful examination of the visual fields of patients complaining of recent headache has been a helpful measure. Here should be emphasized the importance of perimetry with a 1 mm. object, rather than the gross finger tests often employed, to detect possible homonymous hemianopsia, nicking of the macula or other signs of cerebral metastasis.

Ninety-four cases (60 per cent) were thought operable before the thorax was opened. Liberal interpretation of operability early in the surgical study of this disease caused thoracotomy to be done in many cases that now would be recognized as inoperable on the basis of a larger experience. Part of this experience is accented by the sad immediate results of attempting to remove disease which had extended beyond the boundary line that separates the impracticable from the surgically feasible. Thoracotomy should be done in cases believed by preliminary study to be free from blood stream dissemination, direct extension into the mediastinum or pleura, implantation of cells on the pleural surface, or mediastinal nodes demonstrable by roentgenography.

Criteria of operability at thoracotomy include three of the foregoing requirements, because at this time implantation, direct extension or massive lymphatic invasion of the mediastinal nodes can be determined with greater accuracy. Forty-four patients (28 per cent) had thoracotomy only. One patient (0.6 per cent) had local excision of carcinomatous tissue invading the thoracic inlet in an unsuccessful effort to reduce pain. Nine patients died before leaving the hospital and 36 are dead or in terminal stages of the disease.

Removal of malignant disease by pulmonary resection was attempted in 49 cases, or 31.2 per cent (table 6). The type of resection to be done requires consideration of the problem of lymph node involvement, which is a disputed question. Probably the situation is similar to that of cancer of the breast, which is well understood. Any nodal involvement, as in the axilla, is a sign of grave import, but a radical mastectomy is done because some cures will result, although not as many as if the breast had been removed before any axillary metastases existed. The involvement of the supraclavicular nodes in breast cancer, however, is recognized as evidence of extension beyond the practicable range of surgery. Similarly in the lung, regional extension to the hilar nodes leaves a chance for cure by extirpation, while involvement of nodes extending upward along the mediastinum probably should place such a case in the group beyond surgical cure.

The complexity of the mediastinal lymphatic arrangement, the difference in mortality between total versus partial excision and the eventual work capacity that may be anticipated for the patient are factors favoring limited resection. On the other hand, the cancer-surgery ideal of total removal of the involved organ and mass removal of all regional lymph nodes, together with realization that early and rapid invasion of lymphatics may occur, suggests that lobectomy, the theoretical counterpart of simple mastectomy, should be less favorable than pneumonectomy. Increasing experience has demonstrated practically, however, the limited extent to which the analogy can be applied in the problem of lung cancer.

Technically speaking, pneumonectomy is not infrequently an easier procedure than lobectomy for the surgeon, but it is much harder on the patient. In this series of 49 resections there were 10 lobectomies with no hospital deaths and 39 pneumonectomies with 8 hospital deaths (20.5 per cent). To be sure, the latter figure has greatly improved since 1941. In this period there were 30 resections for carcinoma, 6 being lobectomy and 24 being pneumonectomy, with 1 hospital death (3.3 per cent). Since there was no death following lobectomy, the hospital mortality during the last four years in terms of pneumonectomy alone was 4.2 per cent. The 1 death occurred on the eighteenth postoperative day from cardiac tamponade secondary to pleural effusion and might well have been prevented by judicious use of a thoracentesis needle.

Carcinoma of the lower lobe of the lung which appears possibly curable will usually require pneumonectomy in order to excise the regional lymph nodes which characteristically extend upward along the primary bronchus and into the hilus. In upper lobe lesions the situation is somewhat different, since the lymphatic course is superior to the primary bronchus and directed toward the azygos lymph node. By upper lobectomy under these circumstances it has been possible in 4 instances to remove fully as much cancerous tissue as would have been removed by pneumonectomy. Two were palliative procedures to alleviate symptoms from sequestrating masses. One patient died within four months and 1 within one year. Two procedures were designed to remove malignant disease, and the middle lobe was also resected, as it nearly always should be because of the poorly defined fissure between the upper and middle lobes. These 2 patients are living and well for more than two years and more than three years respectively. In 6 cases a lower lobectomy was done (including the right middle lobe in 2 instances) because of peripheral location of the tumor and absence of nodal involvement in 4, and only because of emphysema and poor general condition in 2. The latter 2 patients died in five months and nine months respectively of metastatic disease. Of the other 4, 1 patient died one and a half and 1 five years later, and 2 patients are living and well four years later. Five of these 6 cases involved the right lower lobe and 1 the left lower lobe. The results of these 10 lobectomy cases are given in detail in support of a belief that, in certain carefully selected cases the retention of one lobe may be permissible without sacrificing the chances for cure, with an appreciable prevention of hospital deaths and considerable preservation of functional reserve. Of the 10 patients, 1 lived one and a half years, 1 five years, and 4 are still alive and well two years, three years, four years and four years after operation. It may be noted that this salvage rate is at least equivalent to the combined salvage with pneumonectomy included. Lobectomy, then, may be advisable for purely palliative reasons, for occasional cases of peripheral lesions with no nodal involvement arising in the lower lobe and for upper lobe lesions when the absence of infection allows removal, by mediastinal dissection, of the azygos lymph node and adjacent node-bearing tissue.

Further analysis of the 49 patients submitted to resection (31.2 per cent of 157) discloses that 8 died in the hospital (5.1 per cent), as previously stated (table 6). Twenty-three patients have died since leaving the hospital (14.6 per cent). Ten died within a year, 4 lived between one and two years, 2 lived between two and three years, and 1 lived just over five years. Four patients are living with evidence of recurrence (2.5 per cent). One patient had recurrence within one year, 2 patients within two years and 1 patient within three years of operation. Fourteen patients are living and well with a chance for five year survival (8.9 per cent). Of these patients 6 have been well for more than one year, 2 for more than two years, 4 for more than three years, 1 for more than four years and 1 for more than nine years. The microscopic slides of all these surviving patients have been reviewed and the diagnosis of carcinoma reconfirmed, as a long survival arouses suspicion that the original diagnosis might really have been bronchial adenoma. The patient now surviving for nine years, for instance, had epidermoid carcinoma with at least 3 lymph nodes involved.

Comparison of these results with those obtained in the group of 7 nonmalignant tumors of the lung again illustrates how necessary it is that end results be reported only in terms of accurate pathologic diagnoses. Operation was done on 5 of these patients and all 5 are living and well, as are 2 additional patients requiring only bronchoscopic treatment. In other words, in this series of 164 primary lung tumors the survival rate of nonmalignant tumors is 100 per cent, compared with 8.9 per cent for the malignant group.

It is believed in this clinic that the nonmalignant tumors of the lung are different entities from carcinoma of the lung, and figures concerning them are distinctly separated from the cancer statistics. However, the data are of interest in themselves and add a striking background to a differential picture of nonmalignancy versus malignancy. Bronchial adenoma and myxochondroma of the lung represent only 4.2 per cent of the proved cases of lung tumor, but 9.2 per cent of resected tumors and 33.3 per cent of arrested cases. The technical procedure required for removal may be similar or identical, but the outlook is very different for the patient.

CLASSIFICATION OF CARCINOMA

The pleomorphic nature of cancer of the lung has at times made difficult its subdivision into groups. Although the pathologic classification of carcinoma here followed of epidermoid, adeno-, oat cell, undifferentiated and unclassified carcinoma has been purely on the microscopic evidence, the clinical course, operability and results have so closely paralleled the independent pathologic grouping that they are worthy of note.

Eighty-four (53.5 per cent) of the group were epidermoid carcinoma in character. Twenty-three were inoperable. Twenty-nine were found to be nonresectable at exploratory thoracotomy. In 32 patients resection was done. Bronchoscopy was positive in 72, negative in 3 and not done in 9. Thirteen of the 14 patients living and well are in this group. The longest survival to date is nine years. Clinically the disease tends to have a slower course and these patients have greater suffering from the sequelae of bronchial obstruction than those in the other groups.

Table 7.—*Carcinoma of the Lung in 157 Proved Cases Results in 49 Resections*

	Cases	Per Cent
	49	100.0
	8	16.3
	23	46.9
	4	8.1
	14	28.5

In 20 cases (12.7 per cent) of the group the tumor was adenocarcinoma in character. Ten were inoperable. Three were found to be nonresectable at thoracotomy. In 7 resection was done. One patient is living and well. The longest survival after resection was five years. Bronchoscopy was positive in 8, negative in 4 and not done in 8. The propensity of this group toward cerebral metastasis is striking. Clinically, adenocarcinomas are likely to arise in the lung periphery and to appear as circular masses on roentgenograms.

Seven (4.4 per cent) of the group were oat cell carcinoma in character. Two were inoperable. Two were found to be nonresectable at thoracotomy. In 3 cases resection was done. The longest survival after resection was twelve months. Bronchoscopy was positive in 5, negative in 1 and not done in 1. Clinically the cases run a brief and rapid course to death. Experience has increased the ability to recognize the roentgenologic picture of broadened hilus with radiating fuzzy lines as probably oat cell carcinoma. Obvious metastases were present concurrently with the early symptoms in the 2 inoperable cases.

In 18 cases (11.4 per cent) of the group the tumors were so undifferentiated that they could not be assigned to one of the preceding groups. Eight cases were inoperable. Three were found to be nonresectable at exploratory thoracotomy. In 7 resection was done. One patient is still living with recurrence eleven months after operation and represents the longest survival following resection in this group. Bronchoscopy was positive in 9 cases, negative in 1 case and not done in 8 cases.

Twenty-eight cases (17.8 per cent) of the group for one reason or another could not be classified. Twenty were inoperable. In 8 cases the tumor was found to be nonresectable at thoracotomy. Not one was suitable for resection. Bronchoscopy was positive in 15, negative in 4 and not done in 9 cases.

It is apparent that the subgroups into which the pathologist can divide carcinoma of the lung on the sole basis of microscopic examination provide information to the clinician of great prognostic importance. The outlook for arrest of disease by resection is best in the epidermoid group and thereafter becomes progressively unfavorable through the other groups. Unfortunately the classification that is made from study of a specimen obtained at bronchoscopic biopsy not infrequently must be changed when the entire lesion is available for section and study. Furthermore, a number of cases are technically resectable in which a bronchoscopic biopsy has not been obtained. In 9 cases resection was carried out under such circumstances in this series, including 1 patient who is living and well. For the latter two reasons, the surgeon is seldom justified in withholding the only hope of saving life at the present time if the lesion is resectable on a basis of clinical judgment and experience.

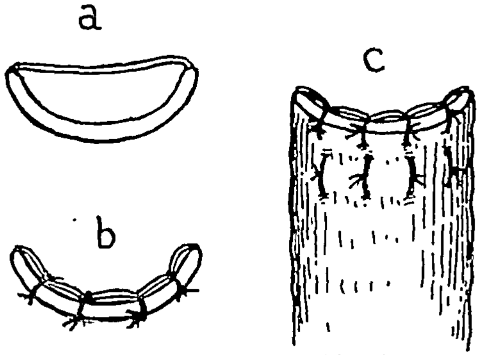

Diagram showing method used in closure of bronchus: *a*, sectioned end of bronchus; *b*, fine interrupted silk sutures approximating posterior membranous bronchus to anterior cartilaginous wall; *c*, same as *b* with addition of a proximal row of longitudinally placed interrupted fine silk mattress sutures.

TECHNICAL CONSIDERATIONS

Steady improvement in the details of management has paralleled the development of thoracic surgery in the last fifteen year period. These advances, in the main, have been concerned with preparation for operation, anesthetic administration, effective closure of the bronchus, reduction of shock, prevention of infection and atelectasis. In this section a number of technical factors are briefly outlined which are believed important in reducing the hospital mortality from 7 deaths in 19 cases of resection (36.8 per cent) in the first eleven years to 1 death in 30 cases of resection (3.3 per cent) in the last four years.

Preparation.—The water soluble vitamins are administered freely. Transfusion is given if necessary to raise the erythrocyte count above 3,800,000 and the hemoglobin above 11.5 Gm. Amino acids are prescribed orally or parenterally, as indicated, if required to raise the serum protein level above 5.5 Gm. per hundred cubic centimeters. Sulfadiazine is given in a dosage of 5 Gm. daily for at least twenty-four hours. Penicillin, since it has become commercially available, is injected in quantities of 20,000 units intramuscularly at three hourly intervals for at least fifteen hours preoperatively. Preliminary artificial pneumothorax was discontinued in the autumn of 1941 for lack of evidence that it was of significant value.

Anesthesia.—The conduct of every anesthesia in these cases is under the direct supervision of one of three experienced and highly competent anesthesiologists, although the anesthetic is actually administered in most cases by a younger physician in the course of anesthesia training. Preliminary aspiration bronchoscopy is done if secretions are abundant. The anesthetic agents used are cyclopropane, nitrous oxide or ethylene combined with ether and oxygen. Administration without exception is through an endotracheal tube connected to a closed system with arrangement for carbon dioxide absorption. Provision is made for catheter aspiration through the endotracheal tube as necessary during induction and maintenance. A bronchoscope is kept in readiness throughout the operation for use if required. The endotracheal tube is removed without hesitation and the bronchoscope employed if viscid secretions block contralateral bronchi and are not removed by catheter suction. Bronchoscopy is performed in almost every case at the completion of the operation for thorough aspiration of secretions but is done before the depth of anesthesia is appreciably lightened.

Operation.—The patient is placed on the operating table with the diseased side uppermost and one knee flexed. Pillows, sandbags or inflatable bags are not used beneath the thorax. The table is inclined to depress the head 15 degrees below the horizontal level. On occasion, the prone position is employed. A posterolateral incision is used through the periosteal bed of the fifth, sixth or seventh rib. A temporary occluding ligature is lightly tightened about the bronchus as soon as feasible after the pleural cavity has been opened. The tourniquet technic of pulmonary resection, of course, has been abandoned, and all vessels and bronchi to be divided are ligated separately. In cases of lobectomy the anatomic fissure is completed with great care to minimize injury to the remaining lobe. The pulmonary fissures, whether they are physically complete or incomplete, are maintained with striking constancy and are devoid of any important vessels or bronchi until the hilus is reached. If one will devote the essential time and patience to the task, the relatively avascular fissure can be followed into the hilus without resorting to division between clamps. All visible hilar nodes are removed, including the subcarinal and azygos lymph nodes in cases of pneumonectomy. Careful closure of the bronchus is made, the posterior membranous portion of the bronchus being infolded into the anterior cartilaginous portion with two rows of interrupted fine silk sutures, as shown in the illustration. No bronchial leakage has occurred in the 29 cases in which operation has been performed since this method has been used. The bronchus is buttressed with a pleural covering, turned as a flap, if necessary, from the chest wall. Five Gm. of sulfanilamide crystals is placed between the bronchial stump and the pleural covering before the latter is sutured in place. The chest wall is closed in anatomic layers with interrupted silk sutures. Equalized tension on pleural and periosteal sutures is achieved by use of a mechanical approximator. This holds the wound edges in constant relationship to each other until all sutures have been tied. The operated hemithorax is drained through a stab wound by means of an intercostal catheter. This is placed under 20 cm. suction, which is maintained until the patient is turned into the recumbent position. It is then clamped off. Whole blood is given during the course of the resection, 1,000 cc. usually being administered.

Postoperative Care.—The patient is transferred directly from the operating table to a bed with an oxygen tent in place. An atmosphere containing 60 to 70 per cent of oxygen is maintained constantly for the first twenty-four hours and thereafter as needed. The bed is kept in the low Trendelenburg position for the first twelve hours. The intrapleural catheter is connected to a drainage system under 15 cm. of negative pressure (measured in water) on return of the patient to the ward. The drainage is maintained until the effusion becomes serous and clear, usually in two or three days. The catheter is then removed. Sulfadiazine is given in a daily dosage of approximately 3 Gm. for five to ten days. Penicillin is given intramuscularly every three hours in doses of 20,000 to 40,000 units for ten to twelve days. The patient ordinarily becomes ambulatory on the twelfth day and is discharged on the sixteenth day after operation.

SUMMARY

Over a fifteen year period from 1930 to 1944 with 164 consecutive cases of microscopically proved primary lung tumors there were 7 nonmalignant tumors. One was a myxochondroma. Six were bronchial adenomas. There was no hospital mortality, and the 7 patients are alive and well at the present time.

There were 157 cases of carcinoma of the lung. Forty-nine patients (31.4 per cent) were submitted to surgical resection (table 7). Of the resected group, there were 8 hospital deaths (16.3 per cent). Twenty-three deaths subsequently occurred from recurrence of disease (46.9 per cent). Four patients are living with evidence of recurrence (8.1 per cent). Fourteen patients (28.5 per cent of 49; 8.9 per cent of 157) are alive and well at the present time with a chance for five year survival. The longest survival to date is nine years.

Technical procedures have reduced the hospital mortality in the last four years in 30 consecutive resections to 3.3 per cent.

605 Commonwealth Avenue.

Psychotic Breakdowns.—Paranoid reactions characterize the greater proportion of situational psychotic breakdowns occurring on the field of battle. The soldier begins to view his comrades with suspicion. Perhaps they are spies. Then he becomes convinced that certain of the officers or men are in league with the enemy. As the process accelerates, the paranoid ideas become more personal. His food, never too good in the front lines, is being poisoned. He is being sent on especially dangerous missions by an officer who is anxious to get rid of him. One sees all degrees of this type of reaction, from the mildly suspicious to the actively combative individual who views every one without distinction as an enemy and has therefore to be kept under continual restraint. Although in such cases there may appear some fear of the individuals involved in the supposed persecution, the principal reaction is one of hostility or rage.—Grinker, Roy R., and Spiegel, John P.: War Neuroses, Philadelphia, Blakiston Company, 1945.

HYPOGLYCEMIC FATIGUE

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Table 1.—*Insulin Tolerance Test*

	Case 5	Case 7	Case 8
Fasting	78	70	65
15 minutes	51	22	11
30 minutes	28	17, patient went into shock at this point	7
45 minutes	48		26
60 minutes	48		40
75 minutes	55		40
90 minutes	69		52

All figures are true blood sugars.

Table 2.—*Blood Sugar in Case 2 After Exercise*

Fasting blood sugar	81
After 2 hours' walk	65
After 1 hour of gymnastics	59

The relationship of neurasthenia and fatigue to carbohydrate metabolism has long been of interest to investigators in psychiatry and internal medicine. Weir Mitchell[1] treated his neurasthenic patients with forced feeding among other measures and obtained good results in some instances. In 1929 Gillespie[2] studied cases of fatigue and exhaustion and found that about one third of them showed a decreased glucose tolerance in the oral test. No other observers have found hyperglycemia in fatigue, although it has been described in some of the psychoses. In 1943 Harrison and Finks[3] reported 31 cases in which hypoglycemia was a factor in the production of symptoms referable to the cardiovascular system. These symptoms appeared two or more hours after meals, were relieved by glucose, were reproduced by insulin and were usually accompanied by a low normal blood sugar. Glucose tolerance was studied by the oral method, but, as the authors stated, the rigid glucose tolerance test requirements of Conn[4] were not followed. They recommended high protein diets and intermediate feedings, which resulted in the alleviation of symptoms. Portis and Zitman,[5] Portis and Alexander[6] and Portis[7] studied the syndrome of hypoglycemic fatigue in neuropsychiatric patients in greater detail, using the intravenous glucose tolerance test developed by Soskin.[8] In their first paper they described 4 cases of fatigue which were attributed to hyperinsulinism and were treated by diets high in proteins and starchy carbohydrates and low in sugars. Atropine was also used in the therapy on the theory that temporary or prolonged stimulation of the right vagus nerve resulted from emotional processes which were relayed through the hypothalamus to the autonomic nervous system. They found that the administration of atropine

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8. Soskin, S.: Endocrine Disturbances in the Regulation of the Blood Sugar, Clinics **1**: 1286, 1943.

was followed by normal glucose tolerance curves in persons who had formerly exhibited flat curves. In their second paper[6] 9 similar cases were presented with a discussion of their psychiatric status. A loss of zest and revulsion against routine activities were found in these cases. It was believed that this emotional attitude caused a disturbance in the regulatory mechanisms of the blood sugar concentration resulting in acute attacks of weakness and fatigue because of increased parasympathetic tonus. Their cases were also benefited by psychotherapy, but this procedure alone was not effective in producing results. The fatigue improved completely only after dietary and drug therapy were added.

In the Army, fatigue is an important and common complaint. Because of the studies cited, we believe it advisable to investigate the carbohydrate metabolism of all patients complaining of fatigue and weakness.

METHOD

Male soldiers admitted to the psychiatric service of the hospital complaining of fatigue were utilized as the basis of the study. Physical, neurologic and psychiatric examinations were performed on all patients. The glucose tolerance of these patients was then studied. The patients were prepared for this type of study in accordance with Conn's[4] recommendations by a diet containing at least 400 Gm. of carbohydrate daily for several days prior to the test. Microchemical blood sugar tests were performed on capillary blood by the Somogyi-Shaffer-Hartmann[9] method utilizing a zinc hydroxide precipitation of proteins.[10] This method yields blood sugars which approximate true blood sugar values, with normal fasting values ranging between 60 and 90 mg. per hundred cubic centimeters. These values are approximately 20 mg. less per hundred cubic centimeters than values given by tungstic acid protein precipitation methods, the commonly used technic. Reducing substances other than glucose are responsible for this difference. The glucose tolerance test was performed as advised by Soskin,[8] using a 50 per cent solution of glucose given intravenously in the dosage of ⅓ Gm. of glucose per kilogram of body weight. In 4 cases the test was done twice. When atropine was employed, it was given one hour before the test was begun in the dose of ¹⁄₅₀ grain (1.3 mg.) hypodermically. This procedure was performed in 5 cases.

TABLE 3.—*Intravenous Glucose Tolerance Tests in Nine Cases of Fatigue*

	Case 1			Case 2			Case 3		Case 4		Case 5		Case 6		Case 7	Case 8	Case 9	
	1st Test	2d Test	*After* Atropine	1st Test	2d Test	*After* Atropine	1st Test	*After* Atropine	1st Test	*After* Atropine	1st Test	*After* Atropine	1st Test	2d Test			1st Test	2d Test
Fasting	59	63	64	74	78	90	63	71	57	72	65	68	90	50	55	66	77	86
½ hour	65	77	109	155	131	178	84	119	60	121	79	91	161	113	150	85	63	61
1 hour	55	62	55	84	71	110	46	69	57	75	58	32	121	46	62	44	47	58
1½ hours	47	59	62	38	56	86	48	52	56	52	58	44	77	26	44	54	105	69
2 hours	48	56	69	45	51	55	49	64	55	54	59	45	53	30	47	53	100	90
2½ hours	52	42	76	56	54	73	71	69	53	66	59	54	52	41	44	54		
3 hours	53	55	75	62	59	76	75	71	57	66	58	44	64	40	54	55		

All figures are true blood sugars (normal is 60-90) except in case 9, which was done with standard technics.

TABLE 4.—*Intravenous Glucose Tolerance Tests in Nine Psychiatric Cases Before and After Administration of Atropine Sulfate*

	Case 10			Case 11			Case 12			Case 13			Case 14		Case 15		Case 16		Case 17		Case 18	
	1st Test	2d Test	After Atropine	1st Test	2d Test	After Atropine	1st Test	2d Test	After Atropine	1st Test	2d Test	After Atropine	1st Test	After Atropine	1st Test	After Atropine	1st Test	After Atropine	1st Test	After Atropine	1st Test	After Atropine
Fasting	64	89	82	84	60	69	50	65	67	65	52	62	69	80	55	55	82	67	84	76	76	73
½ hour	100	102	101	94	100	89	76	108	91	101	80	131	122	124	110	106	86	74	67	80	94	100
1 hour	47	50	53	62	49	61	52	63	68	70	45	54	74	79	64	72	58	66	63	64	50	65
1½ hours	49	58	62	56	41	50	59	50	65	48	43	50	44	67	58	52	65	62	73	70	53	65
2 hours	54	63	69	60	44	45	60	45	57	50	44	51	47	49	56	53	74	66	76	72	52	58
2½ hours	55	74	71	61	46	52	62	49	64	52	45	60	46	60	42	47	74	67	76	75	50	54
3 hours	57	73	79	61	50	52	68	53	64	55	60	62	48	71	45	59	77	74	81	73	48	55

All figures are true blood sugars (normal is 60 90).

Insulin tolerance tests were done by giving ¹⁄₁₀ unit of insulin per kilogram of body weight intravenously as described by Albright. Blood sugars were then followed at fifteen minute intervals for ninety minutes. This test was performed in 3 cases.

RESULTS

(a) Symptoms.—1. Fatigue: Of 100 cases of fatigue and weakness studied, 9 were believed to be primarily caused by hypoglycemia. The main complaints in all these cases were fatigue and dizziness. Unlike the fatigue in ordinary neurasthenia, the fatigue suffered by these patients was not continuous but occurred at specified times, such as on arising in the morning or several hours after meals. It almost invariably occurred after having missed a meal. Patient 3 stated that he was weak and tired early in the morning and about ninety minutes after meals. Patient 4 had headaches and pain in the chest every morning before eating. Patient 7 always felt weak and giddy in the morning if he had not eaten. Patient 8 complained of tiredness and nervousness whenever he went without food.

2. Dizziness: All the patients complained of dizzy spells of varying degree and some also gave a history of

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[9] Shaffer, P. A., and *Hartmann, A. F.*: II. Methods for the Determination or Reducing Sugars in Blood Urine and Other Solutions, J. Biol. Chem. **45**: *365, 1921.* *Somogyi, M.*: Notes on Sugar Determination, *ibid.* **70**: *599,* 1926.

[10] Somogyi, M.: A Method for the *Preparation of Blood Filtrates for* the *Determination of* Sugar, J. Biol. Chem. **86**: 655, 1930.

fainting. Patient 2 had dizziness on exertion and complained of spells in which he lost his sense of balance. Patient 4 fainted after having missed a meal. Patient 5 complained of a trembling sensation associated with weakness. Patient 7 had three fainting spells and many dizzy spells.

3. Hunger: Most of these patients spontaneously participated in frequent feedings usually not of candy but of proteins and starches. Patient 3 reported that he frequently ate between meals. If he ate during one of his attacks, the symptoms subsided within fifteen minutes. Patient 4 regularly took a few sandwiches along whenever he went on a flight lasting five hours. The condition of all the patients improved after eating.

4. Effects of Exercise: Exercise almost invariably aggravated the symptoms. Five patients reported that moderate exercise caused fatigue and dizzy spells. In case 2 (table 3) the fasting sugar fell from 81 to 59 after exercise and was accompanied by a dizzy spell.

5. Other Symptoms: Other symptoms related to the cardiovascular and gastrointestinal systems also occurred. Thus heartburn, pain in the chest and dyspnea were noted.

Only 2 of the patients showed signs of maladjustment. Patient 6 had some anxiety following combat experience overseas. Patient 9 was a generally inadequate personality. In these 2 cases it was felt that the hypoglycemia aggravated the psychiatric symptoms but was not essentially their cause. Palliation of the hypoglycemia improved the fatigue but affected the other complaints only slightly. The 7 other cases showed no significant personality deviations.

(*b*) *Laboratory Studies.*—The results of the glucose tolerance test are given in table 3. Six of the patients had flat curves. The other 3 showed the anticipated blood sugar levels after a half hour, but these values fell during the next two hours. Patient 9 went into hypoglycemic shock after one hour. In most of the cases, repetition of the test gave results similar to the first test. However, patient 5 showed a normal result on the second examination.

Three patients were given insulin tolerance tests (table 1). During these tests the patients had fatigue and dizziness similar to their usual complaints. The blood sugar in case 8 fell to 7 mg. per hundred cubic centimeters at the half hour. However, the severity of the symptoms did not depend on the degree of hypoglycemia. Thus patient 7 went into hypoglycemic shock when his blood sugar fell to 17 mg. per hundred cubic centimeters and glucose had to be administered intravenously.

(*c*) *The Effects of Atropine.*—Since atropine was reported to be beneficial in this type of case, several of the patients were given tincture of belladonna 10 minims (0.6 cc.) three times a day for seven days. None reported any improvement. Patient 3 reported that it made him worse. Five of the patients had glucose tolerance tests performed after the administration of 1/50 grain of atropine hypodermically. The results are given in table 3. In addition, 9 other patients (chronic alcoholic addicts who showed flat glucose tolerance curves but had no hypoglycemic symptoms) had glucose tolerance tests repeated after 1/50 grain of atropine. The results are given in table 4. Of the 14 cases tested with atropine, 3 showed an approximation to normal, 10 showed no change and 1, case 5, showed an intensification of the hypoglycemia after the administration of the atropine. It was therefore concluded that atropine had no effect on preventing hypoglycemia.

(*d*) *Treatment.*—The treatment used in these cases was entirely dietary. We agree with the diet advised by Portis [11] and by Harrison and Finks.[3] Diets high in proteins and carbohydrates of the more complex variety (starches rather than sugar) with frequent feedings prevented the symptoms in our cases. We did not use intensive psychotherapy. We explained to the patients the mechanism of their symptoms. This alleviated their concern about their condition.

COMMENT

We believe that hypoglycemic fatigue is a definite syndrome consisting of fatigue and dizziness after periods of abstinence from food or after exercise. There are other vague symptoms of varying degree. The syndrome can also be reproduced by the administration of insulin. The laboratory tests show glucose tolerance curves which are flat or in the course of which the true blood sugar falls to below 50. If the patient is properly prepared and true blood sugars are estimated, the blood sugar is of definite significance. This does not mean that every patient with a flat curve or low blood sugar experiences this symptom complex. However, we believe that patients with the complaints described who have flat curves have hypoglycemic fatigue. The necessary criteria can be demonstrated in only a small percentage of patients with fatigue. It is important to differentiate hypoglycemia from neurasthenia in order to institute proper therapy. In our cases atropine had no significant effect on either the results of the glucose tolerance tests or on the symptoms. We therefore do not concur in the theory that the condition is due to excessive stimulation of the vagus nerve. Alexander,[6] on the basis of psychiatric examinations, suggested that a loss of zest and revulsion to life were present in these patients and believed that this emotional attitude was responsible for the hypoglycemia via the vagus nerve. We examined the patients psychiatrically and found evidence of emotional difficulties in only 2 of them. We could find no definite relationship between the emotional state and the degree of hypoglycemia. We do believe that where hypoglycemia occurs in an unstable person it may aggravate the instability. In general, we have no theory to explain this syndrome. We wish to emphasize that the symptom complex occurs and can be recognized. We have found dietary treatment alone to be adequate and successful and recommend it in these cases. The biotropic mechanisms of some of these patients may have led them to discover it for themselves.

SUMMARY

1. In 9 cases of fatigue and dizziness due to hypoglycemia the hypoglycemia was demonstrated by the intravenous glucose tolerance test and true blood sugar determinations.

2. Dietary treatment (high proteins and complex carbohydrates) with frequent feedings was effective in alleviating the symptoms.

3. No causal relationship between the hypoglycemia and the emotional status could be found.

4. Atropine had no beneficial effect on the hypoglycemia or on the symptoms.

5. All cases of neurasthenia and fatigue should be investigated for hypoglycemia.

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[11] Portis and Zitman.[5] Alexander and Portis.[6] Portis.[7]

THE TREATMENT OF AGRANULOCYTOSIS WITH PENICILLIN

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Patients with agranulocytosis do not die from the suppression of their bone marrow but from the bacterial invasion which commonly develops in the absence of granulocytes.[1] In a body robbed of its leukocytic defenses an overwhelming sepsis may occur. In such cases minor lesions of the skin and mucous membrane quickly spread and bacteria invade the blood stream. The toxemia from this resulting sepsis depresses still more the function of the bone marrow and may prevent spontaneous recovery. Pneumonia and other terminal infectious lesions precede death.

The recent development of sulfonamides and penicillin has improved greatly the treatment and prognosis of agranulocytosis. Prior to 1942 physicians attempted chiefly to stimulate the activity of bone marrow by such leukopoietic agents as pentose nucleotide, yellow bone marrow, liver extract and blood transfusions. But these remedies too frequently proved inadequate and the mortality rate in cases of agranulocytosis was high. A new policy on treatment was indorsed by Dameshek and Wolfson:[1] treatment should be directed toward the prevention and control of secondary infection rather than toward the stimulation of bone marrow activity. If infection and toxemia can be controlled, the bone marrow may take care of itself and recover spontaneously.

Thus was developed the rationale for the use of sulfonamides and penicillin, superior agents for the prevention and control of infections.

At first (between 1941 and 1943) sulfonamides or penicillin were used more often despite the presence of agranulocytosis rather than directly for it, but during the past two years (1944-1945) penicillin, becoming the remedy of choice, has been used specifically for agranulocytosis (table 1). At first most physicians did not rely on penicillin alone but used also leukopoietic agents. The earlier cases of agranulocytosis treated with sulfonamides or penicillin were caused, not by drugs, but by some overwhelming infection and bacterial toxemia. Most of the recent cases of agranulocytosis treated by penicillin have been caused by various drugs.

SULFONAMIDES FOR AGRANULOCYTOSIS

In June 1942 Dameshek and Wolfson [1] reported the successful treatment of 2 cases of agranulocytosis resulting from aminopyrine: transfusions, pentose nucleotides and liver extract were administered, but credit for the striking recoveries was given chiefly to a use of large doses of sulfathiazole. A year later Heilig and Visvewar [2] reported the successful use of small doses of sulfapyridine alone in 2 cases of "malignant leukopenia and granulocytopenia" caused by highly toxic infections of the urinary tract. Convinced of the greater importance of combating sepsis than of worrying over the bone marrow suppression, Nixon, Eckert and Holmes [3] showed considerable courage by treating 3 cases of agranulocytosis resulting from sulfadiazine (1 case unresponsive to leukopoietic agents) with further doses of sulfadiazine, the very drug responsible for the agranulocytosis: results were satisfactory, and spontaneous regeneration of granulocytes ensued.

Despite these successful results with sulfonamides, in view of the fact that sulfonamides themselves may induce agranulocytosis, physicians have turned to penicillin as an equally effective and safer remedy.

PENICILLIN IN AGRANULOCYTOSIS

The early studies on penicillin revealed that it does not embarrass leukocytic activity. Abraham, Chain and their associates [4] gave sulfapyridine to an infant with a severe pyelonephritis; granulocytopenia developed, presumably from the sulfapyridine. Penicillin and sodium bicarbonate were given orally to combat the continuing pyelonephritis. The penicillin was apparently given, not for the granulocytopenia, but despite it. The urinary tract infection disappeared and leukocytic regeneration occurred. That penicillin could be used without harm in patients with granulocytopenia or even with agranulocytosis accompanying severe infection and that the suppressed bone marrow recovered as the infection subsided was further demonstrated by Herrell and his associates.[5] A patient with severe nasal and facial cellulitis accompanied by agranulocytosis was given penicillin by Herrell;[6] as the infection subsided, the neutrophils progressively increased.

That penicillin might prove more valuable than sulfonamides for the treatment of agranulocytosis was then suggested by Dameshek.[7] Subsequently penicillin has been successfully used for agranulocytosis in 7 other cases. In the first of these cases the cause of the agranulocytosis was not stated.[8] In the remaining 6 cases the agranulocytosis resulted from drug sensitivity: from sulfonamides in 4 cases,[9] from oxophenarsine hydrochloride (mapharsen) in 2 cases [10] (table 1).

We report an additional case of agranulocytosis successfully treated with penicillin. The case was one of rheumatoid arthritis treated with gold salts, with resulting severe agranulocytosis; recovery was dramatic.

REPORT OF CASE

An officer aged 39 with chronic rheumatoid arthritis was admitted to the Army and Navy General Hospital on March 26, 1944. In August 1943 he first developed pain, tenderness and

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From the Rheumatism Center of the United States Army, Army and Navy General Hospital, Hot Springs, Ark.

[1] Dameshek, William, and Wolfson, L. E.: A Preliminary Report on the Treatment of Agranulocytosis with Sulfathiazole, Am. J. M. Sc. **203**: 819-823 (June) 1942.

[2] Heilig, Robert, and Visvewar, S. K.: Malignant Leukopenia Successfully Treated with Sulfapyridine, J. A. M. A. **122**: 591-594 (June 26) 1943.

[3] Nixon, Norman; Eckert, J. F., and Holmes, K. B.: The Treatment of Agranulocytosis with Sulfadiazine, Am. J. M. Sc. **206**: 713-722 (Dec.) 1943.

[4] Abraham, E. P.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Heatley, N. G.; Jennings, M. A., and Florey, H. W.: Further Observations on Penicillin, Lancet **2**: 177-188 (Aug. 16) 1941.

[5] Herrell, W. E.; Nichols, D. R., and Heilman, D. H.: Penicillin: Its Usefulness, Limitations, Diffusion and Detection, with Analysis of 150 Cases in Which it Was Employed, J. A. M. A. **125**: 1003-1011 (Aug. 12) 1944. Herrell.[6]

[6] Herrell, W. E.: Further Observations on the Clinical Use of Penicillin, Proc. Staff Meet., Mayo Clin. **18**: 65-76 (March 10) 1943.

[7] Dameshek, William: Leukopenia and Agranulocytosis, New York, Oxford University Press, 1944.

[8] Keefer, C. S.; Blake, F. G.; Marshall, E. K.; Lockwood, J. S., and Wood, W. B., Jr.: Penicillin in the Treatment of Infections: A Report of 500 Cases, J. A. M. A. **122**: 1217-1224 (Aug. 28) 1943.

[9] Sprague, H. B., and Ferguson, L. K.: Agranulocytosis Treated with Penicillin: Report of Case, U. S. Nav. M. Bull. **43**: 1014-1016 (Nov.) 1944. Meredith, W. C.; Douglas, A. H. R., and Fink, Harold: Penicillin in Malignant Granulocytopenia: Report of Case, ibid. **43**: 1017-1019 (Nov.) 1944. Harford, C. G.; Martin, S. P.; Hageman, P. O., and Wood, W. B., Jr.: Treatment of Staphylococcic, Pneumococcic, Gonococcic and Other Infections with Penicillin, J. A. M. A. **127**: 325-329 (Feb. 10) 1945. Dameshek, William, and Knowlton, H. C.: The Use of Penicillin in the Treatme [illegible] [illegible]locytosis: A Case Report, Bull. New England [illegible] e) 1945.

[10] Smith, L. B.; Cohen, [illegible]: Agranulocytosis Treated with Penicillin, J. [illegible] (Dec. 16) 1944.

stiffness in his left shoulder. During the next six months various peripheral joints became involved: the right shoulder, several joints of the fingers and toes, both elbows, the wrists, the knees, the ankles and the left temporomandibular joint. By March 1, 1944 he was confined to his bed or to a wheelchair and had lost 25 pounds (11 Kg.) in weight. Erythrocyte sedimentation rates, prior to his admission to the Army and Navy General Hospital, had varied between 46 and 72 mm. in one hour, and the treatment had consisted in the removal of dental foci and the use of physical therapy.

the erythrocyte count was 4,571,000 per cubic millimeter and the hemoglobin (Haden-Hausser method) was 11 Gm. The total leukocyte count was 9,300 per cubic millimeter; the differential count revealed neutrophils 58 per cent, eosinophils 4 per cent, lymphocytes 33 per cent and monocytes 5 per cent. Urinalyses were essentially normal.

The patient, who had become concerned by the rapid progress of his disease, desired to receive more aggressive treatment. Therefore he was included in a small group of patients with rheumatoid arthritis who were to be treated with penicillin.[11]

TABLE 1.—*Cases of Agranulocytosis Treated with Penicillin*

				Resulting Agranulocytosis (Lowest Neutrophil Count)						Treatment						
											Other Treatment					
Case	Authors	Primary Disease	Treatment	Neutrophils, per Cent	Eosinophils, per Cent	Basophils, per Cent	Lymphocytes, per Cent	Monocytes, per Cent	Corresponding Total W.B.C., per Cu. Mm.	Penicillin, IM = Intramuscular, IV = Intravenous	Blood Transfusions	Pentose Nucleotide	Yellow Bone Marrow Extract	Liver Extract	Surgical Drainage	Result
1	Abraham et al. (August 1941)	Pyelonephritis (staphylococcic)	Sulfapyridine	11†	*	*	*	*	4,000	Oral penicillin	..	..	..	..	..	Recovery
2	Herrell (March 1943)	Nasal and facial cellulitis (staphylococcic)	*	0	..	1	45	54	4,200	132,000 units IV in 6 days	..	..	..	..	+	Recovery in 6 days
3	Keefer et al. (August 1943)	*	*	"Agranulocytosis"—1 case *						*	..	..	..	..	..	Recovery
4	Sprague and Ferguson (November 1944)	Gonorrhea	Sulfathiazole	4	..	..	92	4	900	6,480,000 units IM in ? days	+	+	..	+	+	Recovery
5	Meredith, Douglas and Fink (November 1944)	*	Sulfathiazole	0	..	..	100	..	1,600	970,000 units IM in 10 days	+	+	..	+	..	Recovery in 10 days
6	Smith, Cohen and Nichols (December 1944)	Syphilis	Oxophenarsine hydrochloride	0	2	..	95	3	5,390	660,000 units IM in 5 days	+	+	+	..	..	Recovery in 4 days
7	Smith, Cohen and Nichols (December 1944)	Syphilis	Oxophenarsine hydrochloride	0	..	..	26	74	5,300	380,000 units IM in 6 days	+	..	+	..	..	Recovery in 6 days
8	Harford, Martin, Hageman and Wood (February 1945)	*	"Sulfonamide"	"Agranulocytosis"—1 case *						210,000 units IV in 4 days	..	+	..	+	..	Recovery
9	Dameshek and Knowlton (June 1945)	Postpartum pelvic infection	Sulfathiazole	0	..	..	100	..	2,000	800,000 units IM in 8 days	+	..	..	..	..	Recovery
10	Boland, Headley and Hench (this report)	Rheumatoid arthritis	Gold sodium thiomalate	0	0	0	55	45	3,400	880,000 units IM in 5 days	+	+	+	..	..	Recovery in 4 days

* Data not complete or not given. † Reported as "440 polymorphs per cubic millimeter."

TABLE 2.—*Leukocyte Response to Penicillin*

			Differential Leukocyte Count (Percentage)					
Date	Comment	Total Leukocyte Count, per Cu. Mm.	Neutrophils	Eosinophils	Basophils	Lymphocytes	Monocytes	Unclassified
June 1, 1944.....	Chrysotherapy begun							
August 1........	....	10,500	60	5	0	29	6	0
August 8........	....	6,400	47	6	0	37	10	0
August 12.......	Total dose of gold salts 550 mg.							
August 13.......	Developed "boils," malaise and fever							
August 14, a. m.	Penicillin begun........................	3,400	0	0	0	55	45	0
August 14, p. m.	....	2,900	2	0	0	45	46	7
August 15.......	....	3,800	1	1	1	53	44	0
August 16, a. m.	....	4,100	20*	13	0	22	45	0
August 16, p. m.	....	4,400	27	14	0	35	24	0
August 17.......	....	5,200	44	9	3	22	22	0

* Eleven per cent stabs; 9 per cent segmented cells.

The physical examination was essentially negative except for the articular involvement. The left temporomandibular joint was slightly tender, thickened and limited in motion. The shoulders were painful on the extremes of motion. The elbows were moderately swollen, tender and painful on forced motion; a flexion deformity of 35 degrees was present on the right, 25 degrees on the left. The wrists, several finger joints, the knees and the right ankle were moderately swollen, tender and painful on motion. Several metatarsophalangeal joints were thickened and tender. In summary, graded on the basis of 1 to 4, the patient had rheumatoid arthritis, activity grade 2 +, extension grade 3.

On admission (March 26, 1944) the erythrocyte sedimentation rate was 35 mm. in one hour (Wintrobe method, corrected); Between April 24 and May 8 (a period of fifteen days) the patient received 3,200,000 Oxford units of penicillin, given intramuscularly. No improvement resulted, nor was he benefited by a subsequent course of injections of typhoid vaccine given intravenously.

Beginning on June 1, gold salts (gold sodium thiomalate: myochrysine) were given intramuscularly once a week, 25 mg. weekly for three weeks and thereafter 50 mg. weekly. During the first ten weeks of chrysotherapy there occurred no significant alterations in the blood picture, sedimentation rates or urinalyses and no toxic reactions.

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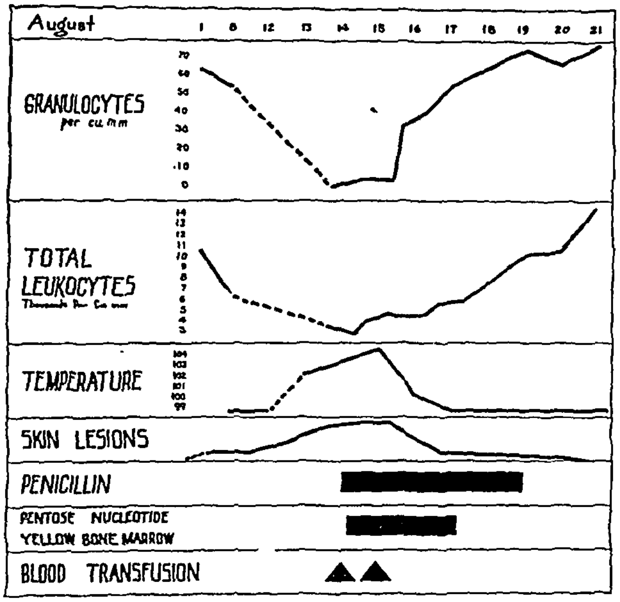
[11] Boland, E. W.; Headley, N. E., and Hench, P. S.: The Effect of Penicillin on Rheumatoid Arthritis, J. A. M. A. **126**: 820-823 (Nov. 25) 1944.

For almost two or three years the patient had noted mild chronic recurrent folliculitis on his back and buttocks, and a few small insignificant lesions had been present since his admission to the hospital. On August 1 the leukocyte count was 10,500 per cubic millimeter; the differential count revealed neutrophils 60 per cent, eosinophils 5 per cent, lymphocytes 29 per cent and monocytes 6 per cent (table 2). To date a total of 500 mg. of gold salts had been given.

About August 3, several small "new pimples" in the inguinal regions and right axilla were noted by the patient, who considered them to be "chigger bites." On August 8 the total leukocyte count was 6,400 per cubic millimeter; the differential count revealed neutrophils 47 per cent, eosinophils 6 per cent, lymphocytes 37 per cent and monocytes 10 per cent. Urinalysis gave normal results.

The patient's family had moved to town, and he had been permitted to live with them "in quarters." On August 12 50 mg. of gold salts was administered, bringing the total dosage of gold salts to 550 mg. within ten weeks. Following this injection the officer returned to his quarters. That evening he developed a headache and general malaise, and on the next morning (August 13) he noted many new skin lesions, "like boils," in both axillas and inguinal regions and over the medial aspect of the right arm. Although warned to report any toxic effects of gold, being in quarters and loath to be hospitalized again, he delayed in reporting these events. However, by night additional cutaneous lesions affected the legs, arms, buttocks and lower part of the back, and his headache became severe. Reporting then to the hospital, he was found to have a temperature of 102 F.



Course in hospital.

The next morning (August 14) the patient was acutely ill, with a temperature of 103.3 F., an intense headache, severe sore throat, bilateral conjunctival congestion and an extensive severe folliculitis. On the left upper gingiva a small ulceration was present; the pharynx was fiery red but exhibited no localized lesions. The cutaneous lesions now appeared as large papules surrounded by indurated erythematous halos 3 to 4 cm. in diameter. The lungs and abdomen were normal. The total leukocyte count was 3,400 per cubic millimeter; the differential count revealed no neutrophils, eosinophils or basophils; lymphocytes were 55 per cent, monocytes 45 per cent (table 2 and chart). Erythrocytes and platelets numbered 4,600,000 and 128,000 per cubic millimeter respectively; there was 13 Gm. of hemoglobin.

The total absence of granulocytes in the blood in the face of a severe, rapidly progressive folliculitis with considerable toxemia constituted a grave situation. At that time (Aug. 14, 1944), with the exception of the briefest of comment,[8] no report on the use of penicillin for agranulocytosis had appeared. Nevertheless, it seemed to us logical to use penicillin to combat the infection while we administered the usual leukopoietic remedies. Hence penicillin therapy was begun at noon on August 14. Forty thousand Oxford units was given intramuscularly every three hours for four injections, then 20,000 units every three hours day and night. Pentose nucleotide 10 cc. four times daily and yellow bone marrow concentrate 336 mg. every four hours were administered. A transfusion of 250 cc. of whole blood also was given. That evening the patient's condition was unchanged except that the progression of the cutaneous lesions was slowing. Leukocytes totaled 2,900 per cubic millimeter; the differential count revealed mature neutrophils 2 per cent, eosinophils and basophils none, lymphocytes 45 per cent, monocytes 46 per cent, unclassified cells 7 per cent.

The next morning (August 15) the patient was still critically ill. The headache was severe and his temperature ranged from 103 to 104.4 F. No new cutaneous lesions developed, and large vesicles containing clear nonpurulent fluid had developed at the crest of many of the papules. Another transfusion of 250 cc. of whole blood was given. The leukocytes totaled 3,800 per cubic millimeter; the differential count revealed 1 neutrophil, 1 eosinophil, 1 basophil, 53 lymphocytes and 44 monocytes.

The penicillin was continued, and during the next several hours a remarkable and dramatic clinical and laboratory improvement occurred, so that on the morning of August 16 (the fourth day of the acute illness) the headache was gone, the pharynx appeared normal, the gingival ulcer was almost healed and the temperature had dropped to 100 F. Whereas on the previous day we had still been greatly concerned for his life, on this day the patient was suddenly "almost well." The cutaneous lesions had changed notably: the indurated erythematous zones around the papules had disappeared completely. Several vesicles, however, had extended in size to as much as 3 cm. in diameter, and in these the vesicular fluid was now rimmed by a yellow margin of leukocytes. The leukocytes now totaled 4,100 per cubic millimeter; the differential count revealed neutrophils 20 (11 stab cells and 9 segmented cells), eosinophils 13, lymphocytes 22, monocytes 45 per cent. That evening the leukocytes totaled 4,400 per cubic millimeter; the differential count revealed neutrophils 27, eosinophils 14, lymphocytes 35 and monocytes 24 per cent.

On the next day (August 17) the patient felt fine, was afebrile and ate a hearty breakfast. The skin lesions were subsiding rapidly. Several vesicles were now filled with purulent fluid, becoming pustules as a result of the patient's improved leukocyte defense. Leukocytes totaled 5,200 per cubic millimeter; the differential count revealed neutrophils 44, eosinophils 9, basophils 3, lymphocytes 22 and monocytes 22 per cent. The administration of pentose nucleotide and yellow bone marrow concentrate was ended August 17. By August 18, four days after penicillin therapy was begun, the patient was again ambulatory and his blood picture had become essentially normal. On August 19 penicillin was discontinued after the total administration of 880,000 Oxford units in five days. No other signs of toxicity to the gold salts appeared.

For one month preceding the patient's toxic reaction to gold the arthritis had improved gradually. During the acute toxic reaction the joints improved notably; objectively they became practically normal, and for the first time in a year the patient noted no pain at rest. Eleven months after the patient's recovery from the agranulocytosis he was still much improved. It has been noted before that arthritic patients who have a rather severe toxic reaction to chrysotherapy may note unusual improvement, more so than many of those who exhibit little or no toxic reaction.

COMMENT

When gold salts are administered for rheumatoid arthritis, toxic reactions will occur in patients sensitive to gold even when the greatest caution is exerted.

Minor complications are common, and severe reactions occur in about 5 per cent of cases; the latter may result from a single injection. Agranulocytosis is one of the severe, potentially fatal reactions to chrysotherapy.

We believe that penicillin was responsible for the dramatic recovery in this case. Leukopoietic agents also were administered, but in our experience blood transfusions, liver extract, pentose nucleotide and yellow bone marrow extract have not produced such a prompt recovery.

This case again illustrates the great importance of controlling secondary bacterial infection in agranulocytosis. When infection and toxemia are controlled, the bone marrow is given a chance to recover spontaneously. Penicillin acts as a temporary substitute for the phagocytic activity of granulocytes while granulopoiesis is being resumed.

SUMMARY AND CONCLUSIONS

Since 1941 sulfonamides and penicillin have been used in the treatment of granulocytopenia or agranulocytosis. At first they were used more often despite the presence of agranulocytosis rather than specifically for it. Seven cases of agranulocytosis successfully treated with sulfonamides have been reported. But because sulfonamides may themselves produce agranulocytosis, penicillin would seem to be the remedy of choice.

Ten cases of agranulocytosis, including the 1 here reported, have now been treated with penicillin: prompt recovery has occurred in every case. This represents a notable improvement in the treatment of the condition and allows for much greater optimism in prognosis than has heretofore been possible. In some of these 10 cases leukopoietic agents were used in conjunction with penicillin, but the current trend is to rely on penicillin alone. Experiences to date indicate that penicillin constitutes the most potent remedy at hand for the prevention or control of the serious, potentially fatal complication of agranulocytosis.

Since this paper was submitted for publication another case of agranulocytosis successfully treated by penicillin has been reported. Thiouracil had been given for hyperthyroidism; the leukocyte count fell to 2,400 with 2 band cells and 2 segmented neutrophils. Treatment included a transfusion, liver extract and a total dose of 560,000 units of penicillin in four days, after which recovery was complete.[12]

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[12] Rothendler, H. H., and Vorhaus, M. G.: Penicillin in Thiouracil-Induced Agranulocytosis, J. A. M. A. **129**: 739 (Nov. 10) 1945.

Changes in Brain and Blood in Head Injury.—The brain is one of the most actively respiring organs of the body, as is evident from its abundant blood supply and the low level of oxygen in the cerebral venous blood. The more intense metabolism occurs in the gray matter, which uses oxygen in vitro about four times as fast as does white matter. It is generally recognized that glucose is the substrate of prime importance for cerebral oxidations. The brain is dependent on a constant supply of glucose from the blood, having very little reserve carbohydrate available. The respiratory quotient of the brain as calculated from arteriovenous differences is close to unity, and oxygen and glucose are taken up from the blood by the brain in approximately equivalent amounts.—Stone, W. E.; Webster, J. E., and Gurdjian, E. S.: Chemical Changes in the Brain and Gasometric Studies of the Blood in Experimental Head Injury, in Trauma of the Central Nervous System, Baltimore, Williams & Wilkins Company, 1945.

THE TEACHING OF DRUG THERAPY

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A former President of the American Medical Association, Dr. Herman L. Kretschmer,[1] criticized the habits of physicians in writing prescriptions. The criticism provoked dozens of letters and innumerable comments, the majority offering support to Dr. Kretschmer's statements. Not all correspondents were agreed concerning the cause and cure of bad habits. Some blamed the pharmacologists; others insisted that the clinicians were at fault.

Obviously, however, many people are concerned about poor prescription writing. One well known educator wrote that the young medical practitioner dreads the writing of prescriptions because he lacks confidence that he may express his desires correctly, because he is in doubt concerning the best combinations and mixtures, and because he fears criticism from those who might observe his errors. He urges that four groups teach prescription writing: pathologists, clinicians, pharmacists and physicians who have graduated in pharmacy.

Another educator who responded to the Kretschmer article claimed that the pharmacologist should teach the action of chemicals on living things and how this knowledge may be utilized in medical practice. He also believes that the pharmacologist should give instruction in the kind of drugs to use and how to prescribe them *but that practical training in prescription writing should* be the responsibility of the clinician.

IS THERE NEED FOR RADICAL CHANGE?

Whenever an aricle concerning teaching of medical subjects is published, much discussion and correspondence are forthcoming and yet specific progressive suggestions are too infrequent, most of the comment being devoted to an expression of personal reaction to the author's communication. Many of those who are interested in the subject can and do provide useful contributions; others can, but fail to expound their own practical findings. As a result, a paper intended to provoke thought and improvement may provoke more thought and comment than actual change.

I would urge that every one who is convinced that he *knows of some useful or valuable teaching aids make* known these aids when writing to an author of or about a published article on teaching. There should be no hesitation about offering sound suggestions for improvement in medical training. Nor should there be any hesitation about initiating worth while changes even though the changes follow some one else's suggestions. Teaching carries with it a grave responsibility which simply must be met, and met *fully*. To do otherwise invites regress and a loss of progress which we have been experiencing, especially in the more recent years.

Today on all sides we hear the familiar cry "Let's change things." Medical education does not seem exempt from such pressure. This may be unfortunate if the cry is taken too seriously by those who have not yet learned that evolution is usually more satisfactory than revolution. If we look around and learn the answers to three simple questions we shall not have cause to consider truly radical changes, except perhaps in a few centers where there is actual need for much change. The answers are not always clear, but with thought we ought to be able to respond satisfactorily to these questions: What is the purpose of the subject which I am teaching? Of what does it consist? How can it be best presented?

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[1] Kretschmer, H. L.: The Teaching of Drug Therapy, J. A. M. A. **125**: 326 (June 3) 1944.

COOPERATION IN TRAINING

There is no knowledge of greater value for the general medical profession than that concerned with drug therapy. It is used continuously by practically all physicians, regardless of specialty. There is no subject that requires more careful and continuous study. The study begins when the student is in his second year at medical school and continues until he, as a physician, retires. There is no subject in which there should be greater cooperation by teachers and practitioners with varied knowledge and interest in specialties. And yet this is one field in which cooperation is frequently lacking and confusion is rampant.

The responsibility of providing and maintaining proper knowledge in drug therapy may be divided between the medical school, the hospital and those engaged in the practice of medicine. Educational institutions should realize the fundamental value of pharmacology and therapeutics and should provide a department which permits the maintenance of pharmacology as a separate entity with adequate budget for salaries, laboratory work and research. The man who heads such a department should be well trained in the use of drugs and not some one who may be outstanding in another field but assumes the teaching of pharmacology merely because the vacancy must be filled. The value of several years' clinical experience for such a person is obvious. He should not be a part time employee, nor should he be one of those who believe that research is the only worth while activity. Research is important and plays an important role in the development of all departments and in gaining respect for the university and even from the student body. Furthermore, it is necessary if progress is to be made. However, the first responsibility of the teacher in a medical center is to the student and future physician. If a teacher must choose between his responsibility to the student and that to the institution because the latter demands that priority be given to research, he should not hesitate to pursue the obligation which he owes to those who have chosen to attend his classes. If the institution is properly organized and its directors realize the proper functions of each department, the department head and his associates will seldom, if ever, be placed in a position of having to choose between student needs and university desires; the two will be the same.

Pharmacology is usually taught in the second year in medical schools in the United States and is one of the few subjects which permit the embryo physician to realize that he is in close contact with the actual practice of medicine. Pharmacology is more than a subject. It is the basis of all materia medica which the average physician will practice in carrying out the responsibility of his chosen profession. Thus, each medical student must be taught not only to respect drug therapy but to have a keen desire to learn more about drugs so that when he graduates he will understand their action and possess a willingness to study new compounds with a view to employing those which are useful additions to the medical armamentarium and weeding out those which contribute little except confusion.

It is ruinous to provide a series of didactic lectures during which students are expected to memorize actions, uses and dosages of several hundred drugs. Instead there is needed a course which encourages the student to think, especially since the practice of therapeutics changes so quickly. Physicians must be taught to prescribe drugs for the individual case and not rely on memory for certain favorite formulas which may have been in keeping with the times several decades ago but which are now outmoded by modern chemotherapy. Teaching that the patient must be approached as an individual will result in more attentive students, better physicians and a strengthened medical school.

In these days students cannot be expected to write prescriptions in Latin and employ several systems of measure. They should be taught prescription writing in English and should learn only the metric system. Nor should students be compelled to listen to much detail about some research program in which the lecturer is momentarily interested and about which he is sufficiently enthusiastic to waste hours on details. Such data may be left for extracurricular seminars and symposiums. The pharmacology that is taught to the medical student is offered for the express purpose of aiding the physician to treat disease more efficaciously. This is different from the pharmacology that might be provided for the advanced research student who is interested in, let us say, renal physiology.

There are some problems, however, in which research is being conducted and which may be of special concern to these future physicians. The spending of extra time on the research may be advantageous when the subject includes such items as the control of a cross infection, relief of menstrual discomfort and the control of hypertension. If the student understands the reason for pharmacology and the subject is made interesting, he willingly learns the fundamentals and then asks questions which perhaps at the moment can be answered only on the basis of current research. When this man asks questions he usually wants answers so that he will know how the knowledge can be best applied in the practice of medicine.

IS THERE NOW NEED FOR EXTENSIVE TEACHING?

Sometimes one hears the argument that there is less need to teach prescription writing and pharmacology, as drug manufacturers have provided little ampules which can be broken for injection and tablets which can be given by mouth, all of them being accompanied by profusely descriptive advertising literature. It is true that manufacturers have made available more pure, more stable and more effective preparations, but no manufacturer has yet been able to offer anything which will serve as a substitute for clinical judgment. The manufacturers have done much to advance our knowledge concerning the use of drugs. They have made funds available for research. They have conducted original research and they have sought better relations with those who are best qualified to evaluate clinically new drugs. However, it should never be forgotten that the medical school is the place to lay a foundation for a knowledge of drugs. Some students feel that they can acquire their knowledge of drugs by experience and practice. Some do acquire knowledge in such a fashion, but others never acquire it because they do not possess the desire, the initiative or the fundamental training to make proper evaluation.

If a large percentage of students in any one medical center continue to harbor the belief that they can learn all that is necessary when they get in practice, it is an indication of failure on the part of the teaching staff. Either the instructors have not made clear the importance of the subject or the place which it occupies in the medical curriculum and in general practice, or the lectures have been hopelessly dull and inadequate. For example, in prescription writing classes it is not necessary to learn how to prescribe confusing and outdated complex mixtures merely for the sake of perfecting the art of prescription writing; all that will be achieved will be boredom by the class. Nevertheless there are many times when it is necessary to prescribe two or more drugs in a suitable medium, and every physician should be prepared to meet such demands. He must know what to prescribe, when and how. Evidence that discussions concerning prescriptions can be made interesting was especially apparent in one student discussion class which I visited. The person in charge of this class provided once a week a discussion of actual prescriptions written in the hospital clinics and in the wards by the attending men. Discussion was free, spirited and productive. The class was voluntarily attended, no roll call being taken, and yet absentees were few, if any.

COOPERATION IN TEACHING

In some medical schools there is much overlapping in teaching. For example, students are offered considerable detail concerning the sulfonamides and penicillin in pharmacology, medicine, obstetrics, dermatology, pediatrics and many other courses. The same is true of the hormones and other products such as serums and vaccines. If instructors from various departments have a special interest in one aspect of the subject, additional valuable teaching hours may be wasted as they expound their interest. Each instructor should recognize what preliminary training the students have had, what his associates are offering in their lecture courses and how the topics can be coordinated to the best advantage. At the same time it would be helpful if every teacher took the time and trouble to ascertain the changes which occur from year to year, so that he could estimate more effectively the advances which are occurring and bring his notes up to date every year. The students should be taught how to undertake collateral reading, where to go for their information and how to pick out what is pertinent to the subject. However, such sources of information do not necessarily provide the whole story. It is also the duty of the instructor to provide through his experience a practical interpretation of what the student reads and to give accessory information to develop appreciation of the importance of this subject.

To help the student realize that each case of illness presents a problem which requires careful thought and that it is not always an occasion for an attack with drug therapy, members of various departments should be brought into the picture. All can aid materially in teaching the proper use of drugs: For example, the pathologist can present slides of tissues on which drugs have exerted harmful effects; a representative of the Department of Public Health of Preventive Medicine can show trends of the effects of drugs on disease such as pneumonia, meningitis and typhoid or, on the other hand, on suicides and accidental deaths; the surgeon, anesthetist, radiologist, obstetrician and others can undertake similar participation. Such cooperation can be achieved during regularly assigned lecture periods, during symposiums and even by an interchange of lectures when special topics come up for discussion. For that matter, the lecturer can invite his teaching associates to join in the discussion of a special problem such as the use and misuse of the sulfonamides, of antibiotics or of arsenicals. Care must be exercised, however, to prevent the overlapping previously mentioned. This can be done by the responsible person's simply taking sufficient time to work out a joint program and to learn what his fellow instructors are doing. Such cooperative schemes can be used during the normal conduct of a course and also at its completion, and even as a refresher course in later semesters, the emphasis being placed on what is new.

Each member of a teaching unit should take a personal interest in his work and the student body. He should strive continuously for improvement, welcome suggestions and even offer suggestions to his associates when such action seems indicated. A man who is of sufficient caliber to teach should welcome suggestions without resentment; otherwise he has no place in this type of work. It is the right of the student to expect that the best will be given in lectures and demonstrations. It is the responsibility of the lecturer and the medical school to supply that which the student has a right to expect. In effect, a student and a school take upon themselves a contract when they agree to spend together four or more years for medical training. The teacher should be chosen on the basis of qualification and not merely on "good fellowship" or successful community life. Obviously a pleasing personality is a help, but the teacher must also have adequate knowledge of the subject, must recognize his responsibilities to his students and must be prepared to devote sufficient time and energy to carry out his duties in a satisfactory manner.

ORIENTATION LECTURES

In the organization of curriculums for medical schools it may help to recall that new students often have inadequate knowledge of the need for and possible application of a given subject and the relation it bears to other subjects offered in the same semester and to those in succeeding semesters. There might therefore be provided lectures intended to acquaint these men and women with the subjects they will study and the reasons for such studies. Otherwise some of the students may miss for a long time the points of the lectures and resort only to memory to obtain sufficient information to pass examinations. As the student enters a lecture course for the first time he should be provided with information concerning what he may be expected to learn and the relation it bears to other subjects in that year and in succeeding years. Such orientation lectures do not necessarily have to be given by a person in charge of the lecture course or department, although usually this would be the case. Often there are other persons who have understanding, who have good training in all subjects and who will be able to present an interesting, complete and informative picture to the student; sometimes it is necessary for several men to participate. Too frequently a student must ask during his training what value the subject is and why he should have to learn so many details. The proper understanding of the course and the part it plays in medicine and adequate organization of the course will minimize such questions.

HOSPITAL TRAINING

When a student enters a hospital as an intern he should hope for the same progressive attitude that he experienced in medical school. The training of the intern is also a cooperative and, if properly done, an extensive undertaking if the results are to be worth while. So far as the use of drugs is concerned, the intern ought to be shown an example by the experienced men on the staff and should see only the best of drug therapy. He should not be forced to use hospital formularies which list remedies by number or other equally obnoxious methods. Time after time opportunity has arisen to point out the necessity of insisting that hospital formularies contain only useful agents offered under fully descriptive names. Bad teaching policies should not be allowed to persist in hospitals simply because those responsible are indifferent to the needs of the intern. Constructive habits are especially important in this period of the young physician's life, and unsatisfactory policies should be corrected. Attending physicians who want improvement can offer much help by pointing their criticisms and entering freely into discussion with their colleagues. No physician need hesitate to suggest useful reforms. If he does hesitate, he hardly deserves the right to be a member of the medical profession. It is his duty to make his profession a better and a more informed one whenever opportunity arises.

REFRESHER COURSES

And finally, to carry the subject of drug therapy into the practitioner's life, one might point out the rapidity with which drug therapy is advancing. Today the well informed physician must be in a position to evaluate the drugs and if necessary even to expose some of those which may be foisted on his fellow practitioners and his patients. He must be aware of new and truly useful agents and he must distinguish without error between corrective and palliative treatment. At the same time he must appreciate that drugs are not the only means of successfully treating disease. Sometimes they are the most effective method; on other occasions they are merely adjuncts. Thus the up to date physician cannot depend solely on published scientific articles. Frequently he wants to hear from those who are specially trained in certain fields and who have had sufficient experience to appreciate what he needs. For those that want such knowledge there should be available courses on the use of drugs arranged at hospitals, clinics and medical schools or symposiums at county and local medical society headquarters. Such courses should be in the hands of those best qualified to give interesting and instructive presentations and not in the hands of those who are merely the most popular or aggressive. The courses should not be so long as to make them prohibitive because of living expenses or boresome because of unnecessary detail, but they should be sufficiently complete to provide the latest information. Sometimes such review courses are left in the hands of those who are extremely meticulous and much is lost because of tedious detail. The physician needs a basic knowledge of chemistry, physics, physiology, pathology and other fundamental aspects of a proper understanding of pharmacology and drug therapy, but he has no need or desire in review courses for details that are best suited for postgraduate seminars in chemistry, physics or physiology.

When one reviews the graduate continuation courses listed in the report of the Council on Medical Education and Hospitals, one is impressed by the infrequent reference to courses on therapeutics. Apparently one can with ease learn about anesthesiology, hospital administration and urology, but it is much more difficult to obtain in a teaching center comprehensive information on the use of new drugs. A short time ago the president of one of America's large drug firms stated that instead of spending millions on research the drug industry should be spending billions. One way in which some of this money could be spent effectively would be to underwrite review courses and to provide fellowships and lectureships with no strings attached. What better research can there be in drug therapy than that relating to education concerning the use of drugs? There is no point in developing "miracle drugs" if they are not properly used, and the drugs which are being developed these days require more than ever proper knowledge if they are to be used most effectively. As Dr. Roger I. Lee once said, during testimony concerning a subcommittee on health and wartime education, "Good medical care is based on good medical education, on medical research and on good medical communication. No doctor who graduated ten years ago can be a good medical practitioner solely on what he learned in the medical school. There is therefore the problem of continuing the medical education of the doctor."

Some indication of the need for this continuation of education can be gained simply by examining items available in the average pharmacy. The shelves of almost all drug stores contain packages of substances which have little or no therapeutic value. A colleague of mine, Dr. E. P. Jordan, inquired of a prescription phamacist in a Chicago loop drug store and learned that this "dead stock" is an important item to be computed in the annual store report and that probably it would be considerably higher in the ordinary drug store than in a pharmacy devoted to prescriptions. Inquiry then was made of a pharmacist in a suburban neighborhood and the inquirer learned that in this suburban store there was about $3,000 worth of dead stock which soon would have to be thrown away. Most of the items reached the store through a physician's prescription and from 70 to 80 per cent of this material probably came from smaller and less well known manufacturers. These preparations were ordered because a physician prescribed new or unusual drugs, ointments or the like but failed to use them more than once or twice. Obviously medical or direct mail advertising or the local activities of detail men were the factors largely responsible for the prescribers using these preparations before consulting such groups as the Council on Pharmacy and Chemistry or former teachers who are in a position to supply a scientific evaluation of claimed therapeutic merit. This situation results in criticism from the pharmacist, unnecessary financial expenditure by the consumer, financial loss by the druggist and frequent loss of patient confidence for the physician. It is no credit to the medical profession when pharmacists state that they can tell what detail man is calling on the doctors in their neighborhood by the type of prescriptions that begin to flow into the pharmacy.

CONCLUSION

There exist today many opportunities and challenges for advancement in rational drug therapy. The use of drugs for the prevention, diagnosis and treatment of disease is of utmost importance and requires continuous study with consideration being given to improvements in the school, the hospital and general practice. Improvements can be made only when there is thorough understanding of the problem involved and when there is complete and whole hearted cooperation among those concerned. To strive continuously for betterment in teaching and medical practice is a responsibility all serious minded physicians and teaching colleagues must recognize. To do otherwise is to shirk our duties and to invite well deserved criticism.

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PENICILLIN FOR ULCERS OF LEG TREATED BY PINCH GRAFTS

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Ulcers of the leg are a perennial problem in charity hospitals because of their slowness in healing and consequent long periods of bed occupancy. For many years pinch skin grafts have been used in the dermatology service for most ulcers larger than 5 cm. in diameter because of the shortened time of hospitalization required and because the grafted area is better than the scar which results from normal healing.

In 1943 Ringrose [1] reported the results obtained with this type of graft in 29 cases treated here up to that time. The outcome was good to excellent in 80 per cent, but there was an incidence of 10.3 per cent of complete failure. The cause of failure did not become evident for some time.

Culture of the ulcers on admission, which at first was done sporadically but later became routine, indicated that the type of organism in the ulcer was important in delaying healing and in the failure of the grafts to take. Several types of organisms were found, but only two, i. e. beta hemolytic streptococcus and hemolytic Staphylococcus aureus, seemed to be the chief cause of trouble. With either one present in an ulcer the grafts usually took quite well, but if both were present poor results were the rule and complete failure was common. In most of the complete failures both organisms were present in large numbers.

The conclusion that our failures were due to infection with these organisms was reached at about the time of the publication of Ringrose's paper. We thought that surface application of antiseptics would not control the infection but that administration of a sulfonamide drug might control it. Sulfathiazole was chosen, and it was found that this drug would control the surface infection quite well when given by mouth and the results improved greatly with fewer complete failures. Sulfathiazole, given three days previous to and following application of the grafts, gave good results over a period of about two years, but one difficulty occurred: drug eruptions from sulfathiazole appeared in many of the patients, who apparently had been sensitized by local application of this drug previous to their hospitalization. Those sensitized reacted with fever and a drug eruption within twenty-four hours after starting the sulfathiazole, and it could not be continued for the requisite period of time to control the infection.

When penicillin became available it offered an opportunity to try a more effective and less toxic agent, as the organisms concerned are usually susceptible to its action. Hirshfeld and his associates [2] and also Lam and McClure [3] found that penicillin by injection greatly improved the percentage of good results in skin grafting of burns. Both felt that its action lay in its ability to control the infection in the granulating wounds. We can confirm this finding in a series of 9 cases of leg ulcers treated by application of pinch grafts in which penicillin was used before and after the grafting to control the surface infection caused by the beta hemolytic streptococcus and hemolytic Staphylococcus aureus.

The technic is not difficult and is as follows: On entrance to the ward a culture is taken and the ulcer is then bandaged with dressings kept wet with cool, one-half saturated boric acid solution. The bandages are removed only once in twenty-four hours and immediately reapplied. After four to nine days the granulations are red and bleed easily and the ulcer is ready to graft. A second culture is taken at this time and it usually shows the same organisms, especially the beta hemolytic streptococcus and the hemolytic Staphylococcus aureus, which were present on the first culture. Penicillin is then given by intramuscular injection, 15,000 units being given every three hours for a minimum of twenty-four and a maximum of forty-eight hours before grafting. Another culture is taken just before grafting, and often no organisms are found by routine culture. Small pinch or Reverdin grafts are removed from a donor area on the thigh and placed on a sterile sponge wet with isotonic solution of sodium chloride. The grafts are then placed on the ulcer. Local anesthesia has been obtained by 2 per cent procaine infiltration or by application of an ice bag containing about 30 Gm. of salt directly to the skin of the thigh. The bag is left in place approximately thirty minutes before taking the grafts, and it gives good anesthesia of about twenty minutes' duration and has been very satisfactory in the smaller ulcers. The addition of salt to the ice lowers the temperature of the bag and shortens the period needed to induce the anesthesia to thirty minutes, whereas ice alone, as recommended by Mock,[4] requires two hours. General anesthesia may be necessary with the larger lesions. When the surface of the ulcer has been covered by the grafts a dry gauze dressing, made up of about twenty layers, is bandaged firmly in place and kept from slipping by use of spiral adhesive strips. The donor area is painted with an alcoholic solution of 1.5 per cent gentian violet and left open. The painting is repeated four times a day for several days with an aqueous solution of 1.5 gentian violet.

After the skin grafting, penicillin is continued from twenty-four to seventy-two hours, depending on the apparent severity of the original infection. The bandage is routinely removed on the fifth day. Cool boric acid compresses are then used until any areas where the grafts failed to take are healed. This takes a variable period of time but seldom more than a week. Then the patient is allowed out of bed, wearing a cotton elastic bandage applied from the base of the toes to the head of the fibula. After a few days of this the patient

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[1] Ringrose, Edward J.: The Treatment of Large Stasis Ulcers by Pinch Skin Grafts, J. Iowa State M. Soc. **33:** 175 (April) 1943.

[2] Hirshfeld, J. W.; Pilling, M. A.; Buggs, C. W., and Abbott, W. E.: Penicillin and Skin Grafting, J. A. M. A. **125:** 1017 (Aug. 12) 1944.

[3] Lam, C. R., and McClure, R. D.: Penicillin as an Adjunct in Skin Grafting of Severe Burns, Proc. Am. Fed. Clin. Res. **1:** 56, 1944.

[4] Mock, Harry E., Jr.: Refrigeration Anesthesia in Skin Grafting, J. A. M. A. **122:** 597 (June 26) 1943.

is discharged with instructions to wear the supportive elastic bandage whenever he is on his feet and to lie down, remove the bandage and rest one hour out of every four hours for several weeks.

We have treated 9 ulcers by this method. In 7 of these less than 2 per cent of the grafts were lost, in 1, 33 per cent were lost and in the other, 40 per cent. The best results were obtained in the largest ulcers.

REPORT OF CASE

The following case history is illustrative of this method:

A white man aged 68 was admitted to the University Hospitals because of an ulcer of the leg of five years' duration. The ulcer appeared two years after a simple fracture and had enlarged slowly and continuously. There was no history of typhoid or thrombophlebitis, he had no varicose veins and all pulses were palpable in this leg.

Examination revealed a large irregular ulcer on the anterior and medial surfaces of the lower half of the right leg. The ulcer measured 17 by 15 cm. in its greatest dimensions. The floor of the ulcer was covered with a large amount of greenish yellow pus, and the granulation tissue was poor. A culture on admission revealed beta hemolytic streptococcus, Pseudomonas aeruginosa and Proteus vulgaris.

The patient was placed on bed rest and cool, continuous, wet dressings of half saturated boric acid solution to the right leg. Seven days after admission the granulation tissue was bright red and bled easily (fig. 1). A culture at this time showed beta hemolytic streptococci, hemolytic Staphylococcus aureus and Pseudomonas aeruginosa. The patient was started on penicillin by the intramuscular route and was given 15,000 units every three hours for seven doses. Twenty-four hours after starting the penicillin another culture was taken which showed no growth. The ulcer was then grafted with pinch grafts and a dry dressing applied. The penicillin was continued for twenty-nine doses after the grafting was done.

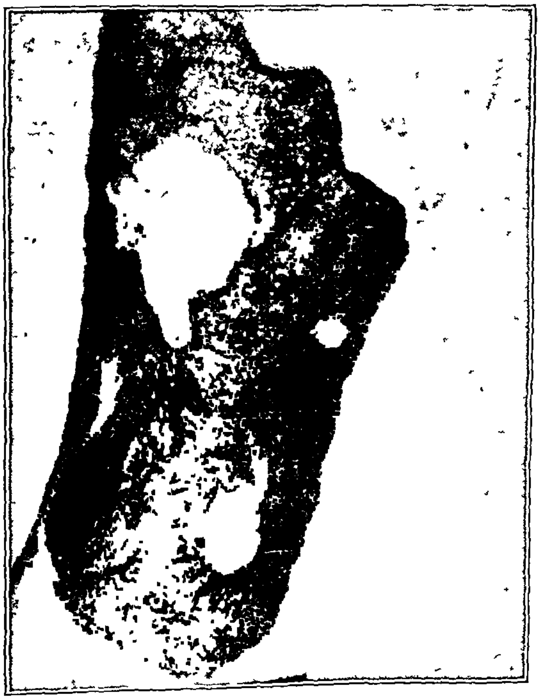

Fig 1.—Ulcer of the leg when ready for grafting

Five days after grafting, the dry dressing was removed from the grafted site and at least 98 per cent of the pinch grafts had taken (fig. 2) and the patient was discharged with the ulcer completely healed and in good condition three weeks later.

From our past experience, it is our feeling that without penicillin the pinch grafts would have failed in this case because of the size of the ulcer and because of the surface infection due to beta hemolytic streptococcus and hemolytic Staphylococcus aureus.

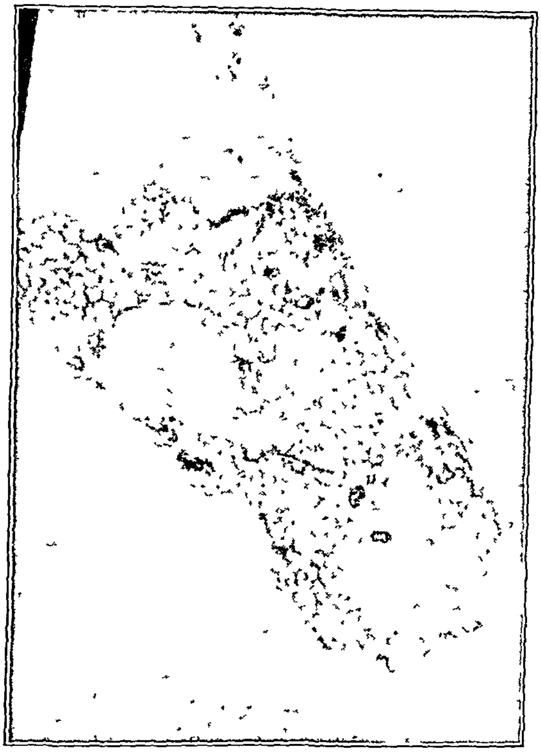

Fig. 2.—Appearance of same leg a few days after removal of bandage.

SUMMARY AND CONCLUSIONS

1. Failure of skin grafts to take in infected ulcers of the leg is apparently caused in many cases by the surface infection with beta hemolytic streptococcus and hemolytic Staphylococcus aureus.
2. Penicillin, intramuscularly, before and after grafting, has proved useful in controlling this surface infection.
3. The use of penicillin resulted in success in 9 cases of such ulcers.
4. We would recommend the routine use of penicillin intramuscularly before and after skin grafting in cases of ulcer of the leg that are treated by pinch grafts in which the surface infection is caused by the beta hemolytic streptococcus and hemolytic Staphylococcus aureus, and it could probably be used with benefit for all ulcers, irrespective of the nature of the surface infection.

Concussion States of War Neuroses.—If the postconcussive state is characterized by headaches which are relieved by lying down but made worse on stooping and by dizziness, weakness, tinnitus, decreased hearing, faulty ocular convergence, difficulty in concentration, sleeplessness and spells of faintness, we may assume that the brain has suffered injury. Unfortunately, spinal punctures are rarely performed in the early stages, so that we never obtain information regarding the presence of blood, an increase in the number of cells or elevation of the total protein in the cerebrospinal fluid.—Grinker, Roy R., and Spiegel, John P.: War Neuroses, Philadelphia, Blakiston Company, 1945.

EFFECT OF TRIDIONE IN THE CONTROL OF PSYCHOMOTOR ATTACKS

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The manifestations of epilepsy have been classified according to the type of seizure, and grand mal, petit mal, jacksonian and psychomotor attacks are most frequently seen. This classification, however, is not entirely satisfactory. There may be a variability in manifestations from time to time; there may not be a clear-cut distinction between one type of attack and another; there may be *formes frustes* which cannot be classified, and many patients have more than one type of seizure. Furthermore, it is questionable whether petit mal and psychomotor seizures should be referred to as convulsive disorders, a term which is used more or less euphemistically as a synonym for epilepsy.

The various types of seizures listed are differentiated not only by the clinical manifestations of the individual attack but also by the electroencephalographic picture.[1] All may be classified as paroxysmal cerebral dysrhythmias. Since the advent of electroencephalography, therapy has been determined not only on the basis of the clinical picture but also on the basis of the electroencephalographic findings.

Of late many advances have been made in the treatment of epilepsy, and in the majority of cases the control of seizures is moderately satisfactory. Bromides, later phenobarbital and more recently diphenylhydantoin sodium[2] have proved to be quite effective in reducing the frequency of grand mal attacks. Surgical removal of the discharging focus plus the anticonvulsant drugs just mentioned are the measures of choice in the treatment of jacksonian or focal epilepsy.[3] The petit mal seizures yield less readily to anticonvulsant therapy. The drugs mentioned have not proved to be too helpful. A ketogenic diet has been advocated,[4] but its efficacy is doubtful. *dl*-Glutamic acid hydrochloride has also been reported to be of therapeutic benefit,[5] but this must be given in massive doses and in combination with other drugs, and our experience with it has not been encouraging. Amphetamine sulfate, caffeine, mebaral (n-methylethyl-phenyl barbituric acid) and other drugs have been used. This multiplicity of therapeutic attempts in itself suggests the difficulty in controlling the condition. Recently Lennox[6] and others have reported on the effectiveness of tridione (3,5,5-trimethyloxazolidine-2,4-dione), which has seemed to be of more benefit in the relief of petit mal seizures than any other therapeutic measure yet tried.

Psychomotor attacks, or, as they have been known for a longer period of time, psychic equivalents or variants, are likewise infrequently influenced by medication. In attacks of this type there usually are no convulsive manifestations, although there may be some tonic spasm or contortion of the trunk muscles, and the patient may stand immobile but with a slow rotation of the body. The principal characteristic of the attack consists in a period of automatic or abnormal behavior. The patient appears to be confused, and he may perform some unreasonable, unmotivated or purposeless act. He may automatically carry out a seemingly purposeful act. Frequently he is seen to mutter to himself or make chewing movements. He may void involuntarily. The degree of impairment of consciousness is variable, but the patient usually is not aware of what he is doing and has complete amnesia for what has transpired even though there is no complete loss of consciousness during the attack. The patient may become irritable or wildly violent and may commit crimes during an attack. The seizure may last for a few minutes or many hours. Dream states, fugue states and epileptic automatisms are types of psychomotor attacks. The social consequences of seizures of this sort are apparent.

Psychomotor seizures may be diagnosed not only by the clinical description of the attacks but also by the electroencephalographic picture. They are usually associated with abnormally slow waves, varying from three to six per second, often of a high voltage.[1] The electroencephalogram taken during or between attacks may show groups or series of these slow waves with broad or square tops, but with waves of the normal rhythm of from eight to ten per second still present at the crest. There may be an appearance of a positive potential which recurs at a rate of from three to six per second superimposed on an otherwise normal rhythm. The usual anticonvulsant drugs seem to have little effect on patients with psychomotor seizures. Bromides or phenobarbital may even induce amnesic or psychotic-like episodes. Diphenylhydantoin sodium has been reported to be of value,[2] as has glutamic acid,[5] but in our experience neither of these has been very effective. Patients are often incapacitated by the attacks and, as the result of the nature of the seizures, may require custodial or institutional care.

Tridione (3,5,5-trimethyloxazolidine-2,4-dione, Abbott) is an entirely new compound possessing analgesic properties. The hypnotic effects of the oxazolidine-2,4-dione derivatives were first described by Erlenmeyer.[7] These and related drugs were also found to be anticonvulsants. Everett and Richards[8] found that 3,5,5-trimethyloxazolidine-2,4-dione was the most potent analgesic in the group and that it also possessed definite anticonvulsant properties. They showed that it is effective in the control of convulsions in mice, guinea pigs, cats and rabbits produced by metrazol, strychnine, pictotoxin, thujone, cocaine and procaine

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[7] Erlenmeyer, H [illegible] Kenntnis der Eigenschaften isosterer und struckturahnlicher [illegible] narkotischen Eigenschaften einiger Der[illegible] und des 2,4 Dioxo oxazolidins, Helvet chim acta **21:** 1013, 1938

[8] Everett, G M, and Richards, R K: Comparative Anticonvulsant Action of 3,5,5 Trimethyloxazolidine 2,4 Dione (Tridione), Dilantin and Phenobarbital, J. Pharmacol & Exper. Therap. **81:** 402 (Aug) 1944

and also found that it raised the electrical threshold at which convulsions appeared in rats. They expressed the belief that it has an action comparable to that of phenobarbital but that it produces less depression in effective doses. Its acute and chronic toxicity in experimental animals was found to be very low.

In human beings, in therapeutic doses, tridione possesses analgesic and mild sedative action. It has been reported to be effective in the control of grand mal seizures, but large doses are necessary and it is probably no more effective than phenobarbital or diphenylhydantoin sodium. Some observers, however, believe that it either does not help grand mal or makes the attacks worse.[9] It has shown considerable promise in the symptomatic control of petit mal seizures when given in smaller doses.[6] Oral administration has produced nausea and skin eruptions in some patients, and others have noticed sensitivity to light, blurring of vision and change in color vision when the preparation is taken in large doses (1 to 1.3 Gm. three times a day). These disappear after discontinuation of the drug. Some patients have been said to report a feeling of light headedness and drowsiness during the first hour after ingestion.

Tridione[10] has been used in the treatment of a group of patients suffering from psychomotor attacks. In every instance the diagnosis was based both on the clinical description of the attacks and on the electroencephalographic findings. A large percentage of the patients had had attacks for many years which had failed to respond to other medical regimens. Many had grand mal and petit mal attacks in addition to the psychomotor attacks. The grand mal seizures, and sometimes the petit mal attacks, had been controlled by phenobarbital, bromides and/or diphenylhydantoin sodium, but in no instance had the psychomotor attacks been controlled by these drugs.

REPORT OF CASES

CASE 1.—L. C. B., a youth aged 16, was admitted to the University Hospital because of attacks of disordered consciousness and disturbed behavior. Since childhood he had had recurring periods of "dizziness" which were characterized by a light headed sensation and followed by "blacking out." These lasted for from a few seconds to ten minutes. He did not completely lose consciousness during them and did not fall over, and there were no motor phenomena. About six weeks before admission the patient had had a similar attack, but there was amnesia for twelve hours following it. This was succeeded by numerous seizures, which started with the dizzy sensation and "blacking out" but were followed by bizarre behavior, sometimes over a period of several hours. During these he wandered or ran about, became violent and frequently fought with people. He sometimes slumped into unconsciousness for a short time. There was always complete amnesia for the period of uncontrollable behavior, and after regaining conciousness he was fatigued. At the time of the onset of the seizures the patient was given diphenylhydantoin sodium and phenobarbital, but these medications seemed to have no effect, and at the time of his admission he was having attacks daily or more frequently. There was a history of a brief period of unconsciousness following a head injury four years previously, but the past health had been good in other respects.

The physical examination showed no abnormality aside from a mild gynecomastia bilaterally, and partial syndactyly. The neurologic and laboratory examinations, including a roentgenogram of the skull, were also negative. The intelligence quotient was 104 on the Wechsler-Bellevue scale. The electroencephalogram[11] showed a dominant picture of three to four per second medium to high voltage waves. These were flat topped, with finer components superimposed on them. They occurred serially and singly in the motor regions and in the temporomotor regions on both sides. Hyperventilation slightly raised the height of the waves and brought on a few more of the slow waves but caused no continuous slowing or high voltage bursts. There were also eight to nine per second medium voltage waves with an intermittent sinusoidal pattern, especially in the occipital region, but there were no spike and wave patterns. It was felt that the electroencephalogram showed evidence of both psychomotor and grand mal characteristics.

The patient was placed on medication with diphenylhydantoin sodium 0.3 Gm. per day and phenobarbital 0.13 Gm. per day, with no control of the episodes of disordered consciousness, and he continued to have daily seizures. He was extremely difficult to manage, and during the attacks he was belligerent and often violent. After ten days in the hospital the patient was given tridione 0.32 Gm. three times a day in place of the phenobarbital. The attacks were completely controlled on this medication and there was a decided psychologic improvement as well. Two weeks after his discharge from the hospital the patient returned, stating that he had failed to take an adequate dosage of the medication and had had another attack of disordered consciousness. Since this time, however, he has taken both preparations regularly and when last seen, four months after the tridione had been started, the patient had had but the one attack mentioned. There had been no symptoms of toxicity.

CASE 2.—C. T. H., an unmarried woman aged 28, had had attacks of disordered consciousness for five years. During these attacks the patient would stare at people and would not know what was going on about her or what was said to her. Sometimes her body would become stiff and spin about, and there were some brief movements of the extremities, but she never fell over and there was no complete loss of consciousness. She would often exhibit automatic behavior and would carry out irrelevant but seemingly purposeful acts. She would sometimes take off her clothes, even though in a public place. The patient drooled and frequently was incontinent during the attacks, and on many occasions she was aware that she had had an attack only by perceiving that she had been incontinent. She had been treated by many physicians with many types of medication, and when first seen she was taking diphenylhydantoin sodium 0.4 Gm. per day and phenobarbital 0.13 Gm. per day and was having from ten to twenty seizures a month.

The physical, neurologic and laboratory examinations, including a roentgenogram of the skull, were entirely negative. The electroencephalogram showed a dominant picture of low voltage fast activity of a rather sharp type. There were frequent two to three per second bursts of high voltage with superimposed high frequency waves. The record was interpreted as consistent with a grand mal type of disorder with psychomotor components.

The patient was placed on tridione 0.32 Gm. three times a day in addition to the diphenylhydantoin sodium and phenobarbital. She has now been on these medications for five months, and there has been just one severe attack, presumably a grand mal seizure, and two or three petit mal episodes. All of these have occurred while under unusual emotional stress. There has been a decided psychologic improvement. There have been no toxic symptoms.

CASE 3.—T. V., a married woman aged 31, had been having attacks of disordered consciousness for a period of four years. These were characterized by a transient loss of memory and confusion with automatic behavior. The patient sometimes took off her clothes during the attacks and was frequently incontinent with them. Regardless of where she was, she would want to lie down and go to sleep. There were no convulsive manifestations. The entire episode usually lasted from ten to fifteen minutes and there was complete amnesia for this period of time. The seizures occurred about three times a week. Diphenylhydantoin sodium, mebaral, phenobarbital and bromides, individually and in various combinations, had failed to control them, and these medications were difficult for her to take, as they all caused drowsiness. Diphenylhydantoin sodium in a dosage of 0.4 Gm. daily caused the development of ataxia and anorexia.

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[9] Lennox, W. G.: Personal communication to the author.

[10] The tridione used in this study was supplied by the Department of Medicine, Abbott Laboratories, North Chicago, Ill.

[11] The electroencephalograms in this study were recorded and interpreted by Dr. Basu K. Bagchi.

The physical, neurologic and laboratory examinations, including a roentgenogram of the skull, were negative. The electroencephalogram showed many six to seven per second high voltage waves and some two to three per second high voltage waves occurring singly or serially. These frequently were cone shaped or had flat tops or jagged sides. There were also many clear and abortive spike and wave patterns of the larval type. Hyperventilation increased the height of the waves and brought on occasional three to four per second slow waves. The record was interpreted as showing evidence of both psychomotor and petit mal seizures.

The patient was placed on tridione 0.32 Gm. three times a day in addition to the diphenylhydantoin sodium 0.1 Gm. three times a day. During the first three months after the institution of this therapy there was but one attack, and there was definite psychologic improvement. On discontinuing the tridione, however, while continuing to take the diphenylhydantoin sodium, the patient experienced a recurrence of the spells and had many in the course of a few days and became quite confused. The day after the tridione was resumed the attacks stopped and the confusion and irritability left completely.

Case 4.—A. F. H., an unmarried man aged 24, had had attacks of disordered consciousness for a period of six years. These were of three types: periods of confusion lasting for but a moment, prolonged periods of amnesia during which the patient would move his arms about, show bizarre behavior and sometimes expectorate and chew his tongue, and occasional grand mal convulsions. He had been taking diphenylhydantoin sodium and phenobarbital singly and in combination, with control of the grand mal seizures but without change in the frequency of the petit mal or psychomotor attacks.

The routine physical, neurologic and laboratory examinations, including a roentgenogram of the skull, showed no abnormality. The electroencephalogram showed a moderate proportion of six to seven per second high voltage waves and two to three per second discharges with other waves superimposed on them, and there were a few abortive spike and wave patterns. Hyperventilation increased the height of the waves and brought on many serials of six to eight per second waves and occasional two to three per second waves with many spike and wave patterns. There were abnormalities characteristic of grand mal, petit mal and psychomotor seizures.

The patient was placed on tridione 0.32 Gm. three times a day in addition to diphenylhydantoin sodium 0.3 Gm. daily and phenobarbital 0.13 Gm. daily. He was then free from attacks for six weeks, until his supply of tridione was exhausted. At this time he had a return of the psychomotor seizures. On discontinuance of the phenobarbital there was a return of the grand mal seizures. Resumption of all three medications again brought about complete relief.

Case 5.—R. A. C., a married man aged 27, had had bizarre attacks for a period of one year. During these he was apprehensive, had a feeling that he was unable to breathe and would stop whatever he was doing. He would obey commands but would attempt to turn away from people. There was complete amnesia for the attacks but no loss of consciousness and no convulsive manifestations. Following the episodes the patient would feel fatigued and sleepy. A right temporosphenoidal brain abscess had been drained at the age of 9. There were no residual symptoms of this.

The physical, neurologic and laboratory examinations showed no abnormality. A roentgenogram of the skull showed an old operative defect in the right midparietal region. The intelligence quotient was 105 on the Wechsler-Bellevue scale. The electroencephalogram showed many three per second extremely high voltage waves of a sloping form. These were found in both cerebral hemispheres but were especially well defined in the right temporal region. The patient had an attack during electroencephalography, and at this time there were extremely high voltage two to three per second waves with flat tops and a few spike and wave patterns. Hyperventilation increased the height and slowness of the waves. The record suggested the presence of both psychomotor and petit mal seizures, with some evidence of definite localization in the right hemisphere.

Treatment with diphenylhydantoin sodium, bromides and mebaral was not effective in controlling the attacks. These continued to occur from twice a day to five to six times a week. The patient was placed on tridione 0.32 Gm. three times a day in addition to phenobarbital and sodium bromide, and while on this regimen he had but three petit mal attacks in a period of three weeks. The phenobarbital and bromide were discontinued, and the psychomotor spells recurred from two to four times daily. When the phenobarbital and bromide were again given with the tridione there was complete relief from the attacks.

Case 6.—W. G. H., an unmarried man aged 30, had been having attacks of disordered consciousness for twelve years. There was a history of a head injury without loss of consciousness two weeks before the onset of the spells, and a family history of epilepsy. The attacks were of two types. In one the patient was confused and exhibited peculiar behavior. "He would walk around like a drunken man" and would carry out automatic acts. There was complete amnesia for these episodes. The other attacks were grand mal convulsions. The seizures occurred from two to three times a day in spite of medication with diphenylhydantoin sodium and phenobarbital.

The physical, neurologic and laboratory examinations, including roentgenographic examination of the skull, showed no abnormality. The intelligence quotient was 98 on the Wechsler-Bellevue scale. The electroencephalogram showed a dominant frequency of six to seven per second. There were many sudden high voltage bursts of three to four per second with dicrotic notches and slightly irregular tops lasting for fifteen to twenty seconds at a stretch. Hyperventilation resulted in a rise in voltage of the regular six to seven per second frequency with admixture of three to four per second waves. Some of the waves had a superimposed high frequency pattern, and there were rare low voltage spike and wave manifestations. The recording was interpreted as showing characteristics of the psychomotor pattern with grand and petit mal components as well.

Diphenylhydantoin sodium 0.3 Gm. daily and phenobarbital 0.065 Gm. daily did not control the attacks. Diphenylhydantoin sodium 0.3 Gm. daily and triodione 0.32 Gm. three times a day also failed to control the attacks. Diphenylhydantoin sodium, phenobarbital and tridione together completely controlled the attacks during the patient's hospitalization. There was improvement in the patient's behavior. When last seen, three months after therapy with triodione had been instituted, the patient stated that the psychomotor attacks had been entirely controlled. He had, however, had a few grand mal attacks, perhaps two or three during this period of three months. When the diphenylhydantoin sodium was increased to 0.4 Gm. daily in addition to the tridione and phenobarbital the grand mal attacks also were controlled.

CONCLUSIONS

Tridione is effective in the control of psychomotor seizures. In some cases there has been a spectacular improvement. Thus far it has not proved to be sufficiently effective when used alone, partly owing to the fact that most of the patients were subject to grand mal and petit mal attacks in addition to the psychomotor seizures, and it has been found necessary to continue to control these with phenobarbital, bromides and/or diphenylhydantoin sodium, as they frequently recurred when these drugs were discontinued. The use of tridione, however, in conjunction with other anticonvulsants such as phenobarbital, bromides and diphenylhydantoin sodium, has almost completely controlled the psychomotor seizures in a large percentage of the cases and has resulted in a decided psychologic improvement.

The drug has been given by oral administration in a dosage of 0.32 Gm. (5 grains) three times a day to every patient. In this dosage no symptoms of toxicity have been reported and no contraindications or limitations to the use of the drug have become apparent.

RUBELLA IN PREGNANCY CAUSING MALFORMATIONS IN NEWBORN

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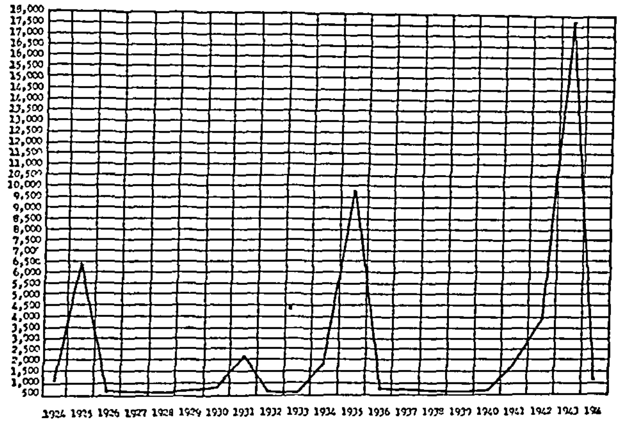
Investigation is being directed at the present time to congenital malformations of the newborn of mothers having had rubella during pregnancy. The congenital anomalies noted have been cataracts, heart disease, deaf-mutism, microcephaly, microphthalmos, atresia of the biliary ducts and renal glomerulosclerosis.

Table 1 presents most of the authors and their publications.

Gregg[1] in 1941 reported a series of 78 cases of congenital cataracts occurring in the children of mothers who had rubella from 1939 to 1941. Swan[2] investigated the problem by examination of congenitally defective children and subsequent corroboration of the rubella complication by an interview with the mothers. Swan[3] later reported further observations of rubella during pregnancy with its sequelae of congenital defects in the child. Carruthers[4] reported a high incidence of deaf-mutism, with a classification of the type, in his series of 18 cases. Reese[5] reported 3 cases of congenital cataracts and also congenital heart lesions within the first month of pregnancy. Erickson[6] in 1944 cited 11 cases in which either congenital eye or heart defects were attributable to rubella occurring in early pregnancy. Rones[7] reported 4 cases of congenital ocular abnormalities due to maternal rubella during the early months of pregnancy. Perera[8] in 1945 cited 1 case of congenital cataract with a probable cardiac lesion. deRoetth[9] in 1945 reported 2 cases of bilateral congenital cataracts with associated anomalous development.



Epidemics of rubella in Milwaukee, 1924-1944.

Most of the investigators of this timely subject based their conclusions on individual records. All of the investigators had failed to cite the total number of women having rubella in pregnancy with no congenital defects in the offspring. Each publication was based on clinical observation of the newborn infant, and the relationship to rubella during the pregnancy was in almost every instance noted in the history.

It is quite apparent that there is some relationship between these anomalies and the occurrence of this innocuous disease during pregnancy. We do not take issue on this particular point. We do feel certain, however, that the entire subject must be interpreted from a public health point of view. It is our purpose to present data covering a three year period, noting the total number of recorded cases, investigating, whenever possible, all married women having had the disease, and interviewing all pregnancy cases as to the status of the child.

TABLE 1.—*Recent Publications on Rubella*

			Types of Congenital Malformations				
Author	Year Reported	Number of Cases	Cataracts, Microphthalmos	Congenital Heart Lesions	Deaf-Mutism	Microcephaly	Atresia of Bile Ducts
Gregg[1]	1941	78	78	44	..	..	..
Swan and others[2]	1943	31	14	17	7	3	..
Swan and others[3]	1944	12	2	4	5	..	1
Carruthers[4]	1945	18	0	1	18	3	..
Reese[5]	1944	3	3	3	..	1	..
Erickson[6]	1944	11	11	9	..	..	..
Rones[7]	1944	3	3	1	..	..	..
Perera[8]	1945	1	1	1	..	..	..
deRoetth & others[9]	1945	2	2	1	..	..	..

EMBRYOLOGY[10]

Lens of the Eye.—The lens of the eye first appears as a thickening of the ectoderm over the developing optic cup during the fourth week. This lens placode is converted to the lens vesicle. The lens vesicle detaches from the ectoderm in the sixth week and loses its cavity by the eighth week. In association with the other structures of the eyeball, the lens reaches its typical appearance during the third month.

Internal Ear.—The primordium of the internal ear has been observed in embryos of 3 to 4 weeks. It appears from the ectoderm as the otic placode. This invaginates to form the otocyst. Differentiation of the otocyst results in the formation of the vestibular primordium and the cochlear primordium. The vestibular primordium eventually forms the semicircular canals, and the cochlear primordium forms the cochlea. This differentiation occurs at about 4 weeks and becomes distinct by 8 weeks. The essential features of the morphology of the cochlea and the semicircular canals are completed early in the third month.

TABLE 2.—*Survey 1942-1944*

	1942	1943	1944
Total number of cases	3,998	17,703	525
	73	477	31
	54	354	21
	19	123	10
Number pregnant	1	9	1

In the meantime the eighth cranial nerve has developed. The ganglions associated with the auditory nerve are formed from the neural crest at the fourth to the fifth week. They become associated with the differentiating otocyst. Early in the third month morphologic differentiation is practically complete.

From the South View Hospital of the Milwaukee Health Department and the Department of Medicine, Marquette University School of Medicine.

[1] Gregg, N. M.: Tr. Ophth. Soc. Australia **3**: 35, 1941.

[2] Swan, C.; Tostevin, A. L.; Moore, B.; Mayo, H., and Black, G. H. B.: M. J. Australia **2**: 201 (Sept. 11) 1943.

[3] Swan, C.; Tostevin, A. L.; Mayo, H., and Black, G. H. B.: M. J. Australia **1**: 409 (May 6) 1944.

[4] Carruthers, D. G.: M. J. Australia **1**: 315 (March 31) 1945.

[5] Reese, A. B.: Am. J. Ophth. **27**: 483 (May) 1944.

[6] Erickson, C. A.: J. Pediat. **25**: 281 (Oct.) 1944.

[7] Rones, Benjamin: M. Ann. District of Columbia **13**: 285 (Aug.) 1944.

[8] Perera, C. A.: Am. J. Ophth. **28**: 186 (Feb.) 1945.

[9] deRoetth, A. F. M., and Greene, P. B.: Northwest Med. **44**: 222 (July) 1945.

[10] Jordan, H. E., and Kindred, J. E.: Textbook of Embryology, ed. 4, New York, D. Appleton-Century Company, Inc., 1942. Arey, L. B.: Developmental Anatomy, ed. 4, Philadelphia, W. B. Saunders Company, 1941.

Septums of the Heart.—Partition of the primitive chambers of the heart begins between 5 and 6 weeks. Development of the interatrial and interventricular septums is rapid and completed by the end of the seventh week. However, the interatrial septum is not entirely completed until the foramen ovale is closed at the time of birth.

DATA

The accompanying chart presents a series of 44,482 cases of rubella occurring in the city of Milwaukee over a period of twenty years. It will be noted that this disease occurred in epidemic proportions about every ten years. We thought it advisable to investigate the most recent years for a survey of the problem of pregnancy and rubella, and therefore we chose the years of 1942, 1943 and 1944.

Table 2 presents a total number of 22,226 cases during this time. The health department records reveal a "Mrs." in a series of 581 women during this three year survey. Of these cases we were able to investigate 152 women.

Among the 152 women investigated, 11 had rubella during their pregnancy and 5 had rubella up to the second month, 4 from the second month to the fourth month, 1 in the seventh month and another in the ninth month.

Table 3.—*Case Records*

No.	Initials	Age	Disease	Months Preg-nant	Distribution of Rash	Duration of Rash, Hours	Post-auricular Nodes	Date Reported to City Health Dept.	Birth Date of Infant	Expected Birth Date	Sex	Congenital Malformations
1	E. W.	34	Rubella	1½	Mainly face and neck	24	—?	5/11/43	12/29/43	12/28/43	♂	None; normal } Twins
2	E. W.	34	Rubella	1½	Mainly face and neck	24	—?	5/11/43	12/29/43	12/28/43	♀	None; normal
3	G. S.	25	Rubella	1	Mainly face; entire body also	48	?	4/30/43	10/26/43	12/18/43	♀	Stillborn; hydrocephalic
4	P. B.	23	Rubella	2	Face and body	72	++++	2/ 8/43	9/ 9/43	9/ 9/43	♀	None; normal
5	L. N.	27	Rubella	2½	Face and body	12	++++	2/24/43	8/18/43	8/14/43	♀	None; normal
6	O. H.	25	Rubella	3	Face and body	48	++++	3/20/43	8/24/43	8/26/43	♂	None; normal
7	M. R. C.	32	Rubella	2	Face and body	48	—?	5/ 5/43	11/28/43	12/15/43	♂	Blue baby; sinus disease; otitis media; hydrocephalus which receded spontaneously; perfectly normal at present
8	I. L.	30	Rubella	3¾	Upper chest	48	++++	5/ 7/43	10/18/43	10/11/43	♀	None; normal
9	R. H.	34	Rubella	7	Face and body	48-72	++++	3/ 1/43	5/ 3/43	5/ 3/43	♀	None; normal
10	J. K.	23	Rubella	9	Face and body	48-72	++++	3/10/43	3/19/43	3/17/43	♂	None; normal
11	R. Z.	35	Rubella	2½	Face and body	48	++++	4/16/42	10/24/42	10/12/42	♂	None; normal
12	M. L.	30	Rubella	2	Face and neck	48	++++	4/ ?/44	1/ 4/45	1/ ?/45	♂	None; normal
*	M. L.	..	No rubella ...		....	..	....	6/ ?/37	6/ ?/37	....	♂	Bilateral congenital cataracts

Table 3 presents the record in which in case 1 there were twins, both normal. Case 3 is the only evidence of either a coincident or direct involvement from the disease. We have purposely included the report of case 12. This case was of particular interest to us because the mother, who had rubella in her second month, gave birth to a normal child at term. In 1937 she had a normal pregnancy and gave birth to a child at that time with bilateral congenital cataracts.

COMMENT

Our approach to this subject was based on the records of the City of Milwaukee Public Health Department. Most authors on this subject reported cases seen in private practice or from a correspondence survey for congenital defects. In the event of congenital defects, further investigation for its relationship to rubella was carried out.

In our 11 cases only 1 evidenced a pathologic course. This percentage (9.09) does not concur with the statement of Swan, who claims that all mothers with such exanthems during the first two months of pregnancy will give birth to children with congenital abnormalities. It would be most proper for a well organized survey to be conducted from other health department records covering this particular subject. Incidentally, it might include a similar study of other virus diseases.

Another phase of this disease meriting a most cautious and careful approach must be considered. The question of therapeutic abortion has been suggested by the following quotations: "The justification for therapeutic abortion, if rubella occurs during the first two months of pregnancy, should be debated, since, according to Swan's figures and our own impression, 100 per cent of such babies will have serious congenital malformations."[6] "In view of the fact that, in a high proportion of cases, the contraction of rubella in the early months of pregnancy will lead to congenital defects in the infants born subsequently, it has been suggested that in such cases the pregnancy should be terminated."[2] "Should pregnant women who contract exanthemata in the first three months of pregnancy be aborted?"[5] From our records we cannot justify these conclusions. This subject is deserving of a much more intensive study than has heretofore been presented.

SUMMARY AND CONCLUSIONS

1. Rubella has occurred in the city of Milwaukee in epidemic proportions approximately every ten years.
2. In a survey of the period 1942, 1943 and 1944, 22,226 cases of rubella were reported, of which 152 married women were investigated. Of these, 11 were pregnant at the time they had rubella.
3. Of the 11 pregnant women who had rubella, the disease in 5 occurred during the first two months, in 4 during the second to fourth month, in 1 in the seventh month and in 1 in the ninth month.
4. One stillbirth occurred among the 11 cases; 1 woman had twins, both normal; 1 woman gave birth to a child with congenital cataracts during a normal pregnancy, and at the time during which she had rubella in the second month of her pregnancy she delivered a normal child.
5. Our records do not justify consideration of termination of pregnancy because of rubella.
6. The occurrence of congenital malformations in virus diseases in pregnant women is a subject deserving of further careful investigation.

324 East Wisconsin Avenue, Milwaukee 2.

Clinical Notes, Suggestions and New Instruments

COMPLETE SUBSIDENCE OF SCLERODERMA WITH DIHYDROTACHYSTEROL

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This case of diffuse scleroderma is being reported because of the remarkable, almost dramatic response to therapy with dihydrotachysterol. The patient has been observed and treated by us for the past five years.

The clinical diagnosis of generalized scleroderma is usually not very difficult. The skin shows a boardlike thickening and appears to be stretched and hide bound. There is also a glistening with a characteristic ivory white sheen. Because of the extreme infiltration, the skin cannot be folded or picked up from the underlying connective tissues. The patient's face usually has a masklike appearance because of the tautness and increased density of the skin.

Scleroderma runs a protracted and progressive course resulting in steadily increasing disability, restriction of motion and immobility. Ulcerations, especially of the finger tips, contractures and impairment of normal physiologic functions, such as deglutition, are not uncommon sequelae.

The pathogenesis of diffuse generalized scleroderma is obscure. The disease is characterized by a progressive fibrosis which involves not only the skin but also the internal vital organs, thus making the prognosis grave. In the last decade, diffuse scleroderma was studied from the metabolic point of view and attention was focused particularly on calcium metabolism. In some cases it was found that the calcium content of the skin was increased by approximately 30 per cent. In 1927 there were introduced highly active substances affecting the calcium and phosphorus metabolism through the action of ultraviolet rays on ergosterol. The following isomers were isolated: ergosterol, lumisterol, tachysterol, calciferol, toxisterol, suprasterol I and suprasterol II. Of these, calciferol, lumisterol and the two suprasterols have been crystallized. These sterols differ from one another in their effects, only tachysterol, calciferol and toxisterol being pharmacologically active. Calciferol (vitamin D) is a potent antirachitic agent; the other two have little antirachitic value but exert powerful effects on calcium metabolism.

Holtz in 1927 attributed the toxic symptoms of hypercalcemia, produced through the administration of large doses of irradiated ergosterol, to these nonantirachitic sterols (the so-called "calcinose factor"). Through hydration or heating of the irradiated ergosterol the antirachitic factor was destroyed, whereas the toxic or serum calcium elevating factor remained. Dihydrotachysterol was obtained from unstable tachysterol by treatment with nascent hydrogen and was marketed as A. T. 10 (antitetany factor 10). By 1938 several hundred cases of low calcium diseases had been treated with uniformly good results.

REPORT OF CASE

History.—A white woman aged 70 was admitted to Mount Sinai Hospital in April 1938 because of an enlarged thyroid gland. This enlargement, about four times normal size, had existed for the past thirty-five years. On admission, a diagnosis of nontoxic goiter and chronic infectious arthritis was made. May 8, 1938 a subtotal thyroidectomy was performed and the pathologic report revealed a follicular colloid adenomatous process. The postoperative course was somewhat stormy, but eventually the patient made a good recovery.

One year later, in June 1939, the patient came to the Dermatology Outpatient Department with the following cutaneous symptoms:

1. The skin on the face, chest, abdomen and extremities had a hard, leathery appearance with ivory white and alabaster-like patches. There were also several areas of hyperpigmentation and hypopigmentation. The density of the skin was so great that it could not be picked up between the thumb and the index finger.
2. The face was infiltrated and drawn into a masklike appearance.
3. Mobility of the mouth was restricted to about half of normal, and the skin appeared to be firmly attached to the underlying structures.

The clinical picture was that of a classic case of scleroderma, and this diagnosis was confirmed by microscopic examination of a piece of skin taken for biopsy.

Treatment and Result.—On the assumption that the condition was caused by a parathyroid deficiency resulting from the thyroidectomy, treatment with dihydrotachysterol was instituted. In September 1939 15 drops were given daily and continued for eighteen days. A total of 45 cc. of dihydrotachysterol was given, after which the patient was put on a forty-five day rest period. Treatment was then resumed with a daily dose of 15 minims (1 cc.) until an additional 30 cc. had been taken. The total dosage was 75 cc. given over a period of five months. While under treatment, blood calcium and phosphorus determinations were made frequently and were always within normal limits.

The patient made excellent progress with definite somatic improvement and complete regression and recession of all physical symptoms except the maldistribution of pigment. Her skin was completely restored anatomically and physiologically. In addition, personality change occurred. From a severely depressed mental state the patient emerged with a much more cheerful outlook on life.

COMMENT

It is our impression that this patient sustained damage to her parathyroid glands during the performance of the subtotal thyroidectomy. This produced a disturbance in calcium metabolism sufficient to have resulted in scleroderma. As dihydrotachysterol is specific for disturbances in calcium metabolism, the excellent results obtained would seem to indicate that her scleroderma was parathyroprivic in origin.

SUMMARY

A case of diffuse scleroderma occurred one year following subtotal thyroidectomy for a colloid goiter. On the assumption that the scleroderma arose because of a disturbance in calcium metabolism secondary to surgical injury of the parathyroids, dihydrotachysterol was administered, with almost dramatic response.

100 Central Park South—124 East Eighty-Fourth Street.

From the Dermatological Department of Mount Sinai Hospital, Service of Dr. Isadore Rosen.

PAIN IN THE PERFORATING TYPE OF PEPTIC ULCER

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Moynihan once said that peptic ulcer could be diagnosed over the telephone. He pointed out that duodenal ulcer is likely to produce the typical "food-comfort-pain" picture whereas gastric ulcer is more prone to cause the typical "food-comfort-pain-comfort" syndrome. All physicians are familiar with the classic picture of recurrent episodes of epigastric burning, gnawing or hunger distress which begin from half an hour to several hours after meals and are eased by food or soda. The telephonic diagnosis of peptic ulcer would go far amiss if it should be employed in cases of complicated peptic ulcer. Although it is true that uncomplicated peptic lesions involving stomach, duodenum or anastomatic stoma follow the usually accepted pattern so well described by Moynihan, it is equally true that the more serious the complication the less stereotyped and clocklike are the symptoms caused by such lesions. Change from the accepted pattern is particularly true of penetrating types of peptic ulcer.

When such ulcers begin to invade the wall of the viscus more deeply so that serosa and contiguous tissues are involved,

---

From the Division of Medicine, Mayo Clinic.

the pain becomes more severe, relief following the ingestion of food or soda is less prompt and adequate and there is more associated tenderness. The usual "food-comfort-pain" or "food-comfort-pain-comfort" cycles become distorted or are obliterated entirely. Furthermore, under such conditions varying shifts of pain into secondary regions are common. Our object in this report is to lay emphasis on the great variability of the pain under such circumstances.

Gastric ulcers often will produce pain or distress which is felt in the left side of the epigastrium. The pain may be referred laterally to the back or extend through to the back. The pain in the back, which may be extremely severe, is felt more frequently to the left than to the right of the lower thoracic portion of the spinal column. Pain extending into the left shoulder and neck is evidence of deep penetration of the ulcer with involvement of tissue with phrenic innervation.

The pain of duodenal ulcer is felt in the pit of the stomach or to the right of the midline just above the umbilicus. If the pain extends to secondary regions, it usually extends to the right costal region, into the thorax or around to the back. When the pain is severe, it may extend through to the back. Localization of the dorsal pain is usually at the level of the ninth and tenth thoracic vertebrae to the right of the spinal column.

Shift of pain due to duodenal ulcer to the left usually indicates penetration of the pancreas, a bilaterally placed organ. It is our belief that when ulcer invades tissues supplied by spinal nerves the pain often may be interpreted as being felt along the superficial, highly differentiated branches of these same nerves; for example, along the distribution of the intercostal nerves.

REPORT OF CASE

A white man aged 38 entered the Mayo Clinic on Feb. 3, 1944 and was hospitalized immediately. He stated that he had been well until 1926, at which time an epigastric gnawing sensation began one to two hours after meals. This distress was relieved by milk and by soda. Attacks lasting several days to a week occurred several times each year, but neither vomiting nor melena was associated. Posterior gastrojejunostomy performed in 1929 gave relief of pain until 1931, when it returned in more severe form with penetration to the back. Thereafter several increasingly severe attacks occurred each year until 1938, when roentgenograms revealed a gastrojejunal colic fistula. At operation closure of the colon, resection of the jejunum with end to end anastomosis and gastroduodenostomy were accomplished. The patient stated that since this operation he had had no further ulcer distress.

The illness which brought the patient to the clinic began in the spring of 1940 with pain in the right lower part of the chest. There was no abdominal pain. The pain was a hot, burning pain which would start either anteriorly or posteriorly and extend in either direction. It was skin deep. It was not related to meals. On some occasions hot coffee would ameliorate it somewhat but never would eliminate it completely. This pain had been present save for an occasional day almost continuously since onset. On one occasion it had been relieved temporarily by injection of the intercostal nerves with procaine.

A modified Sippy type of management was employed for two weeks after the patient was admitted to the hospital, with no relief at any time. Laboratory examination of the blood revealed hemoglobin 15.8 Gm. per hundred cubic centimeters of blood, leukocytes 11,800 per cubic millimeter of blood, blood urea 40 mg. per hundred cubic centimeters and sedimentation rate of erythrocytes 21 mm. per hour (Westergren). An occasional leukocyte and erythrocyte were noted in the urine; the guaiac test on the stool was negative (1 specimen) and spinal fluid was normal. Gastric analysis before treatment revealed a total acidity of 72 and a value for free hydrochloric acid 62 (Töpfer's method); 130 cc. of gastric content was obtained. After ten days of the Sippy treatment total acidity was 24, free hydrochloric acid was 14 and 150 cc. of contents was obtained. Results of gastric analysis were within normal limits in other respects. Roentgenograms of the chest, gallbladder, thoracic portion of the spinal column and colon and an excretory urogram revealed no abnormalities. Roentgenologic examination of the stomach, however, revealed considerable deformity, especially at the outlet.

Because the patient failed to improve under medical management for ulcer, despite decrease in gastric acids, injection of the sixth to eighth thoracic nerves on the right side with procaine was carried out. Within fifteen minutes the patient experienced remarkable relief, which lasted throughout the night so that he was able to sleep well, which was then truly unusual for him. However, because it was felt that the pain probably was referred from a perforating duodenal ulcer, exploratory operation was carried out. A huge duodenal ulcer was found on the anterior and lateral wall of the second portion of the duodenum. The ulcer was perforating onto the gallbladder, which formed its base. Partial gastrectomy and partial duodenectomy were carried out.

COMMENT

In this case of recurrent duodenal ulcer there were no abdominal complaints, but pain was present in the right lower portion of the chest. It should be emphasized that pain in cases of recurring ulcer may have no relation to meals, may not be relieved in the usually accepted manner and may be referred to regions remote from the abdomen. Furthermore the clinical impression in these cases must ofttimes be relied on when the roentgenologic studies reveal no evidence of recurring ulceration.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

The following articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

Austin Smith, M.D., *Secretary.*

PROCAINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1945, p. 97).

The following additional dosage forms have been accepted:

The Wm. S. Merrell Co., Inc., Loeser Laboratory Division, New York

Solution Procaine Hydrochloride 1% W/V: 30 cc. and 100 cc. Each cubic centimeter contains procaine hydrochloride 10 mg. in isotonic solution of sodium chloride with chlorobutanol 0.5 per cent as a preservative.

Solution Procaine Hydrochloride 2% W/V: 30 cc. and 100 cc. Each cubic centimeter contains procaine hydrochloride 20 mg. in isotonic solution of sodium chloride with chlorobutanol 0.5 per cent as a preservative.

PERTUSSIS VACCINE COMBINED WITH DIPHTHERIA AND TETANUS TOXOIDS (See The Journal, Jan. 5, 1946, p. 31).

The following dosage form has been accepted:

Sharp & Dohme, Inc., Glenolden, Pa.

Diphtheria-Tetanus-Pertussis Antigens Combined, Alum Precipitated: One 3 cc. vial (one 3 dose immunization) and one 10 cc. vial (three 3 dose immunizations). Preserved with phenylmercuric nitrate 1:50,000.

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1945, p. 428).

The following dosage forms have been accepted:

Carroll Dunham Smith Pharmacal Company, Orange, N. J.

Diethylstilbestrol (in Peanut Oil): 1.0 mg. per cc.: 1 cc. ampuls.

Tablets Diethylstilbestrol: 0.1 mg., 0.5 mg., 1.0 mg. and 5.0 mg.

PENICILLIN (See New and Nonofficial Remedies, 1945, p. 214).

The following dosage form has been accepted:

Winthrop Chemical Co., Inc., New York

Penicillin Calcium: Vials containing 100,000 or 200,000 units.

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SATURDAY, MARCH 2, 1946

THE TREATMENT OF SHOCK FROM PROLONGED EXPOSURE TO COLD

Sometime ago THE JOURNAL commented editorially on the experiments by the German Professor Weltz, who had accidentally discovered that rapid warming in water of 104 to 113 F. was life saving to guinea pigs and hogs that had been chilled to the threshold of death. Now the discovery of the entire contents of Himmler's cave in Hallein placed in Allied hands a number of secret S. S. records. These are the basis of a report by Major Alexander.[1] The letters convey a complete account of the organization and administration of the experiments on human beings performed by Dr. Rascher, assisted by his wife, Nini, who was formerly secretary and mistress of Himmler. Dr. Rascher proposed to Himmler experiments on human beings in the concentration camp of Dachau. Persons were cooled until the intragastric temperature was reduced to 79.5 F. and the rectal temperature to 79.7 according to thermoelectric measurements. Fatalities occurred only among the groups in which the bodies were immersed in such a position that they covered the occiput and thus affected the brain stem and the hind brain. Necropsies of such cases always revealed free blood up to 0.5 liter in the cranial cavity; the heart invariably showed dilatation, especially of the right chamber. These subjects died as soon as the rectal temperature reached 82.4 F. despite all attempts at resuscitation. Other important observations were an increase of the viscosity of the blood, increase of hemoglobin, increase of leukocytes and a rise of blood sugar to twice its normal value. Auricular fibrillation made its appearance regularly at 86 F. rectal temperature. During attempts to save severely chilled subjects, rapid rewarming was proved in all cases preferable to slow rewarming. Even after removal from the cold water the temperature of the body tended to sink rapidly. The experiments have also shown the inefficacy of pharmaceutic measures as well as of rewarming by animal warmth, that is, by animal bodies or women's bodies.

An interesting document is Professor Hippke's letter of thanks to Himmler in which he expresses his appreciation for the great assistance provided by the Dachau experiments with human beings and his hope that other problems, namely the combination of low pressure and extreme cold, would be solved in a similar manner in the future. There must have been some mild opposition on the part of the more decent scientists to this method of investigation, as is evident from the remark by Himmler in a letter to Dr. Rascher: "People who today still disapprove of experiments on human beings, but who prefer to let brave German soldiers die from the consequence of intense cold, are to me nothing but traitors to their country and I shall not hesitate to supply the names of these people to the authorities who are in a position to take action against them." According to the report, Nov. 5, 1942 four inmates of the concentration camp for women in Ravensbrück were turned over to Dr. Rascher and his staff in Dachau. They were not supposed to be used as subjects in the chilling experiments but merely as a means of rewarming male subjects used in such experiments. In another report to Himmler Rascher stated "Up to the present I have carried out intense chilling experiments on 30 human beings by leaving them outdoors naked from nine to fourteen hours, thereby reducing their body temperatures to 27 C. [80.6 F.]. In all experiments up to the present, all subjects, despite the fact that hands and feet were partly frozen white, were successfully rewarmed within another hour." He also makes a request that he be transferred to Auschwitz, where he "could clear up the question of rewarming people frozen on dry land in a large serial experiment." In another experiment people were kept naked outdoors for fourteen hours at a temperature of 21.2 F.

Rascher and his wife were executed by shooting in April 1945, two weeks before the arrival of the Americans, on the order of Himmler, who considered Rascher too talkative and hence a dangerous source of information if he fell alive into Allied hands. A relatively small percentage of fatalities occurred among prisoners who were used for malaria experiments. However, the report indicated that there were a great number of unnecessary casualties because of the crude manner of performing experimental liver punctures by a certain Dr. Brachtl. In general, human subjects for experimental purposes were selected from the inmates of the camp in the following order: first Jews, then foreigners, Gipsies, stateless prisoners, foreign Catholic priests, professional criminals and finally political prisoners. Such group distinctions between prisoners, expressed in the form of special badges, were made in order to create group rivalry and disunity among the prisoners.

The report lists all of the participants and witnesses for the convenience of the war crime authorities, because they may find that the manner in which these experiments were performed constituted a war crime. Dr. Rascher wallowed in blood and in obscenity, allowing frozen people to die in bed with naked women in order to demonstrate the relative ineffectiveness of that method of rewarming, while standing ready to measure the rectal temperature of those who recovered sufficiently to carry out sexual intercourse under those circumstances.

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[1] Alexander, Leo: The Treatment of Shock from Prolonged Exposure to Cold, Especially in Water (Report 250), Office of the Publication Board, Department of Commerce, Washington, D. C.

Out of this revolting mess of sadistic cruelty and obscenity, participated in not only by men of Rascher's caliber but by a number of men once important in the German scientific world, came a single practical suggestion, namely that rapid rewarming is more effective in the treatment of shock due to chilling than slow rewarming. Even that suggestion was not original, for it was advocated as far back as 1880 by a Russian physician.[2]

AMYOTONIA CONGENITA (OPPENHEIM), A RARE BUT IMPORTANT ENTITY

While only 200 cases of amyotonia congenita are on record,[1] practical considerations demand a clear conception of the pathologic processes involved in this disease and its twin, Werdnig-Hoffmann's progressive muscular atrophy. The physician must be prepared to advise the anxious parents of a child with amyotonia congenita regarding the possibility of the occurrence of the disease in other children who may be born to them. The following data will prove helpful in meeting this responsibility: Amyotonia congenita is familial. Multiple cases occur among siblings, but the disease is not hereditary; the disease may occur in one of double-ovum twins or in both of identical twins. It has been observed also in triplets, two of the triplets being identical and affected with the disease, the third being of separate ovular origin and unaffected.

Along with these important clinical observations stand the following pathologic anatomic data: Hypoplasia (retardation in development and maturation), not atrophy, of a large portion of the fibers in certain voluntary muscles is regularly present; malformation of the end plates of the motor nerves appears to have been satisfactorily demonstrated; hypoplasia of the spinal motor ganglion cells is a characteristic feature; heterotopia (malformation in migration) of the ganglion cells of the spinal cord occasionally has been observed; malformations of parts of the body other than the central nervous system are common.

Correlation of these data suggests very strongly that amyotonia congenita is the result either of defective development of the fertilized ovum or of an essential biologic deficiency in one or both of the gametes. Recorded observations provide no support for a maldevelopment of the central nervous system referable to any injury to an originally normal fertilized ovum. Likewise there are no critical data to support a pathogenic theory based on continued destruction of fully formed spinal ganglion cells during fetal development. Specifically against such a theory are the following observations: Significant gliosis of the spinal cord has not been observed; recorded instances of ganglion cell degeneration may be attributed to terminal secondary pathologic processes either in the mother or in the child; progressive myelin degeneration of the anterior spinal nerve roots has not been observed. The characteristic absence of myelin sheaths may be considered a failure of development of these structures; even in cases in which the disease progresses rapidly, no inflammatory reaction has been described in the central nervous system, in the muscles or in the peripheral nerves.

In the light of these and other less essential observations, in summary, the following statements seem justifiable:

1. Amyotonia congenita may be considered a focal retardation or cessation in the development of voluntary muscles resulting from a malformation of the central nervous system involving chiefly, if not exclusively, the peripheral motor neurons. This malformation occurs in intrauterine life, most likely before the sixth month of gestation.
2. The disease not infrequently occurs in siblings but does not occur necessarily in all children of a given family.
3. Amyotonia congenita being essentially a congenital malformation fully developed and most likely completed during intrauterine life, improvement in or elimination of the basic defect is not to be expected, even though the disease may be compatible with life for a number of years.

IMMUNOGENIC DIET

Important data on the relation of diet to natural resistance have been posthumously reported by Webster[1] of the Rockefeller Institute. Webster and his associate had available for this work five inbred strains of mice. Each strain had been reared under strictest quarantine conditions for at least ten years. They sought first the selection of a natural food that would best support the normal physiologic welfare of mice. Following suggestions of earlier investigators[2] they tested the nutritional properties of various whole grain cereals (66 per cent) in combination with 33 per cent whole dried milk and 1 per cent sodium chloride. The cereals tested were wheat, corn, rye, oats and rice, with desiccated potato tested as a control.

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[2] Laptschinski in Russkiy Vrach, abstracted in Zentralblatt für Chirurgie in 1880, quoted by Major Leo Alexander.

[1] Burdick, W. F.; Whipple, Dorothy V., and Freeman, Walter: Amyotonia Congenita (Oppenheim): Report of 5 Cases with Necropsy; Discussion of the Relationship Between Amyotonia Congenita, Werdnig-Hoffman Disease, Neonatal Poliomyelitis and Muscular Dystrophy, Am. J. Dis. Child. **69**: 295 (May) 1945.

[1] Schneider, H. A., and Webster, L. T.: *J. Exper. Med.* **81**: 359, 1945. Dr. Webster died July 12, 1943.

[2] Schwarz, E., and Schwarz, H. K: J. Mammal. **24**: 59, 1943. McCollum, E. V., in Nelson Loose-Leaf Medicine **7**: 162, 1920.

Inspection of the life cycle data of various groups of weanling Swiss mice revealed that, when growth, fertility, fecundity, ability to rear young and growth of those young were used as criteria, the most satisfactory overall diet was the whole wheat-dried milk-salt mixture. Corn and rye were next in order. Rice was less satisfactory, having especially poor ability to support the rearing of sucklings. Potato and oats were equally inadequate on several counts, notably in the extremely poor growth of the progeny. Infection tests performed when the progeny were 5 weeks of age showed that the potato and oats fed progeny were hypersusceptible to experimental Salmonella enteritidis infection. Progeny fed on the other grains were of approximately equal resistance. As a result of these tests the whole wheat-whole milk diet was selected as the "natural" dietary point of resistance.

Weanling Swiss mice were reared on this "natural" diet, with an equal number of controls reared on a synthetic diet containing all known food essentials in as pure a state as possible. This synthetic diet contained all known vitamins at levels well above minimal requirements. The "natural" and synthetic diets were approximately equal in supporting growth. Comparison of their effects on natural resistance were made by inoculating each mouse by means of a stomach tube with 50,000 S. enteritidis bacilli. Of 293 mice reared on the "natural" diet 194 survived this infection, a survival rate of 66.2 per cent. Of 296 mice on the synthetic diet there were only 120 survivors, a survival rate of but 40.5 per cent. The test was repeated with a tenfold dose of S. enteritidis (500,000 bacilli). The average survival rate for mice on the "natural" diet was 37.5 per cent. On the synthetic diet the survival rate was but 17.7 per cent.

In both series the natural resistance was maintained at a higher level on the whole wheat-dried milk diet than on the best synthetic diet now available. In a search for the factors involved in this superiority, groups of mice were fed various combinations of synthetic diet and "natural" foods. Inoculation tests showed that the greater natural resistance of mice subsisting on the "natural" food was due to the whole wheat it contained, dried milk contributing nothing to this immunogenic effect. The physical or chemical nature of the whole wheat immunogen is not yet determined.

Several by-products of this research are of suggestive clinical interest. First, it was found that the resistance of females is less than that of males on all diets thus far tested. Thus, with the average survival rate of 40.5 per cent on the synthetic diet, the male survival rate was 51.0 per cent and the female rate but 29.9 per cent. Differences were also noted in different inbred strains of mice. With strains of mice of high hereditary resistance the immunogenic effect of the whole wheat diet was less pronounced than with strains of low hereditary resistance.

Whether or not the whole wheat immunogen is equally effective against organisms other than S. enteritidis or with portals of entry other than the gastrointestinal tract has not yet been determined. The relative titers of different types or grades of wheat and the effects of cooking also have not yet been reported. Evidently, however, Webster introduced a new test for nutritional efficiency which may have important applications to future research in clinical medicine and animal husbandry.

Current Comment

CONGENITAL DEFECTS FOLLOWING MATERNAL RUBELLA

From 1937 to 1942 rubella was widely prevalent in Australia. Gregg[1] and others[2] have reported the occurrence of grave eye, ear, cardiac and other congenital defects in the children born during these years of mothers who had rubella during the early months of pregnancy. At present this appears to be the first time that such defects have been recorded in connection with rubella. The virologist Burnet writes[3] that the defects "may represent the development of a new capacity on the part of the virus, but more probably it is only a reflex of the unusual opportunity presented to the virus by the existence of a large young adult population susceptible to infection." The startling Australian reports were soon followed by reports of cases in this country of congenital defects following maternal rubella early in pregnancy.[4] Instances have been observed in England also.[5] While the strange power of rubella to cause congenital defects is not limited to Australia, the possibility cannot be excluded that the Australian virus may have been introduced into this and other countries. The production by Hiro and Tasaka[6] and by Habel[7] of rubella in monkeys on inoculation of blood and nasal washings from early stages of the human disease has established quite clearly that rubella is a virus infection. The virus can be cultivated on the chorioallantoic membrane of the chick embryo.[7] These results warrant further work now much needed in the hope it may lead not only to a better understanding of the genesis of congenital malformations in general but also to means of preventing the tragic effects of rubella in early pregnancy. The importance of rubella in this respect cannot be overstated. On the basis of the facts then at hand Swan[2] estimated that practically all children of mothers who have rubella in the first two months of pregnancy and 50 per cent of those having it in the third month will be defective. The frequency of malformation after rubella in pregnancy is a matter for careful investigations under different conditions. In Milwaukee Fox and Bortin[8] found that of five women who had rubella in the first two months of pregnancy only 1 gave birth to an abnormal child (stillborn and hydrocephalic). There can be no question that special efforts must be made to prevent rubella in early pregnancy. At this time all contacts with persons suffering from rubella must be avoided, especially by the woman who has not had the disease. Perhaps specific means of prevention will become available.

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[1] Gregg, N. M.: Congenital Cataract Following German Measles in the Mother, J. Ophth. Soc. Australia **3**: 35, 1942.

[2] Swan, Charles; Tostevin, A. L.; Moore, Brian; Mayo, Helen, and Barham Black, G. H.: Congenital Defects in Infants Following Infectious Diseases During Pregnancy, M. J. Australia **2**: 201 (Sept. 11) 1943.

[3] Burnet, Frank M.: Virus as Organism, Cambridge, Mass., Harvard University Press. 1945.

[4] Albaugh, C. H.: Congenital Anomalies Following Maternal Rubella in Early Pregnancy, J. A. M. A. **129**: 719 (Nov. 10) 1945. Altmann, Franz, and Dingmann, Albert: Congenital Deafness and Cataract Following Rubella in Mother, Arch. Otolaryng. **42**: 51 (July) 1945. Conte, W. R.; McCammon, C. S., and Christie, A.: Congenital Defects Following Maternal Rubella, Am. J. Dis. Child. **70**: 301 (Nov.-Dec.) 1945.

[5] Rubella and Congenital Malformations, Lancet **2**: 19 (July 7) 1945.

[6] Hiro, Y., and Tasaka, S.: German Measles is a Virus Disease. Monatschr. f. Kinderh. **76**: 328, 1914.

[7] Habel, Karl: Transmission of Rubella to Macacus Mulatta Monkeys, Pub. Health Rep. **57**: 1126 (July 31) 1942.

HEARINGS ON S. 1606 SCHEDULED

The Senate Committee on Education and Labor has scheduled hearings on S. 1606, the second 1945 version of the Wagner-Murray-Dingell bill, to commence on Monday, March 18, at 10 a. m. These hearings will last, it is reported, for about a month, and plans are being completed so that the Association will be adequately represented during the course of the hearings. Senator Murray, Montana, the co-sponsor of the bill, is chairman of the committee, and the other members, together with the states they represent, are as follows:

Senator George D. Aiken, Vermont
Senator Joseph H. Ball, Minnesota
Senator Dennis Chavez, New Mexico
Senator Forrest C. Donnell, Missouri
Senator Allen J. Ellender, Louisiana
Senator J. William Fulbright, Arkansas
Senator Joseph F. Guffey, Pennsylvania
Senator Lister Hill, Alabama
Senator Olin D. Johnston, South Carolina
Senator Robert M. LaFollette Jr., Wisconsin
Senator Wayne Morse, Oregon
Senator Claude Pepper, Florida
Senator H. Alexander Smith, New Jersey
Senator Robert A. Taft, Ohio
Senator Elbert D. Thomas, Utah
Senator James M. Tunnell, Delaware
Senator David I. Walsh, Massachusetts

The House Committee on Ways and Means began public hearings on the subject of social security on February 25. The first 1945 version of the Wagner-Murray-Dingell bill is still pending before this committee and may be considered during the course of these hearings. Present indications are, however, that the initial hearings will be on the old age and survivors' insurance provisions of the Social Security Act and thereafter will extend progressively to other phases of the act, such as old age assistance, aid to dependent children, aid to the blind, general assistance and unemployment compensation. These hearings will consider the report of the committee's social security technical staff, recently submitted to the committee under the title "Issues in Social Security," which does not cover the problem of medical care in its broad application but does refer to the need of providing medical care to the recipients of public assistance, the aged, the dependent children and the blind.

TEMPORARY APPROVAL OF RESIDENCIES

Many hospitals are rapidly developing new educational programs at the residency level to meet the needs of returning medical officers who are seeking such work in large numbers. It has been deemed wise by the Council on Medical Education and Hospitals of the American Medical Association and by the executive committee of the Advisory Board for Medical Specialties to inaugurate a plan to facilitate at least temporary approval of new residencies. The plan proposed by these bodies is described elsewhere in this issue. This program should contribute materially to meeting the educational demands during this acute emergency. Temporary approval of a hospital in the manner described will protect such residents as may be enrolled in the educational program of the hospital so far as credit toward specialty board certification is concerned. Every effort will be made by representatives of the Council and the boards to be reasonably sure that subsequent inspection of the residency will reveal that the program warrants regular approval. The judgment of the Council and of the boards will be based on a careful study of the personnel, hospital statistics and educational program outlined by the hospital on making application for approval to the Council. The proposal has met with approval by a number of the boards. Most of them have already indicated that they will collaborate in this project. It is probable that most, if not all, of the remaining American boards will likewise participate.

HYPERSENSITIVITY RHEUMATIC FEVER

One concept of the etiology of rheumatic fever involves hypersensitivity. Aikawa[1] has recently reviewed the evidence in favor of this hypothesis. He points out that the nature of the antigen-antibody reaction has been firmly established on an experimental biochemical basis. The question of the relationship between immunity and allergy remains unsolved, however. Attempts to treat rheumatic fever on the basis of the desensitization theory have so far yielded equivocal results. The hypersensitivity theory of the causation of the rheumatic fever and the rationale of attempted desensitization may or may not be confirmed by subsequent investigations. In any event Aikawa deserves credit for his careful review of the evidence on this subject to date.

CONTINUATION COURSES

Elsewhere in this issue the Council on Medical Education and Hospitals of the American Medical Association presents a supplementary list of continuation courses. On Dec. 8, 1945 The Journal contained a long list of such courses being offered throughout the country for the period Jan. 1 to July 16, 1946. Because of the heavy demands for such work, many institutions have accelerated their plans for short courses and have reported considerable numbers of them since January. Further supplementary lists will be published as the need arises before the regular semiannual compilation, which will appear early in July.

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[8] Fox, M. J., and Bortin, M. M.: Rubella in Pregnancy Causing Malformations in Newborn, this issue, p. 568.

[1] Aikawa, Jerry K.: Hypersensitivity and Rheumatic Fever, Ann. Int. Med. 23:969 (Dec.) 1945.

MEDICINE AND THE WAR

NAVY

TRAINING IN AVIATION MEDICINE

The Bureau of Medicine and Surgery, Navy Department, Washington, D. C., recently made an urgent request for application for training in aviation medicine. This training leads to the designation of Naval Flight Surgeon, and eligibility is limited to medical officers of the rank of lieutenant commander or below.

The School of Aviation Medicine is conducted at the Naval Air Station, Pensacola, Fla. Classes are formed on an average of every four months, one having started in February. Two months' instruction is offered in applied aviation physiology, eye, ear, nose and throat, psychiatry and certain other subjects. Students are then assigned to flight indoctrinational training and ground school work for six weeks. On completion of the training program the student is designated as naval flight surgeon and receives his wings.

VOLUNTEERS TO BE TRAINED IN MEDICAL STATISTICS

The Bureau of Medicine and Surgery, Washington, D. C., recently issued a call for volunteers to be trained in the specialty of medical statistics. Capt. Fred R. Lang, chief of the Division of Statistics, has arranged for instruction of interested medical officers at the School of Hygiene and Public Health, Johns Hopkins University, Baltimore.

Unless a heavy registration necessitates an earlier, more concentrated course, the training program in medical statistics will begin on September 1. All interested medical officers of the Regular Navy are urged to send in their applications to the chief of the Bureau of Medicine and Surgery at the earliest possible date.

COMMODORE JOHN C. ADAMS PRESENTED THE JOHN JEFFRIES AWARD

The John Jeffries Award was recently presented to Commodore John C. Adams, New York, "for outstanding contributions to the advancement of aeronautics through medical research." Commodore Adams graduated from the University of Alabama School of Medicine, University, in 1917 and was appointed Lieutenant (jg), Medical Corps of the U. S. Navy, in 1917. He completed training as a flight surgeon at the Army School of Aviation Medicine in 1923, and since that time his interests have been primarily confined to aviation medicine.

NAVY AWARDS AND COMMENDATIONS

Rear Admiral William John Clarke Agnew

Rear Admiral William J. C. Agnew, assistant chief of the Bureau of Medicine and Survey, Navy Department, was recently awarded the Legion of Merit "for exceptionally meritorious conduct in the performance of outstanding services to the government of the United States as director of personnel, including the Medical Corps, Hospital Corps and Nurse Corps, from the beginning of the emergency to Nov. 24, 1944 and as assistant chief of the bureau from Nov. 25, 1944 to the surrender of the Japanese empire." According to the citation accompanying the award "by his dynamic leadership and his competence in handling problems of the greatest complexity during a period when the demand for medical officers and nurses was rising steadily, Rear Admiral Agnew was able to coordinate the recruiting and training of medical personnel in departmental duties, thereby insuring expeditious assignment to ships, advance bases and hospitals throughout the world as well as to the shore stations and hospitals at home. Serving as assistant chief of the bureau, he bore the entire responsibility for the operation of the Medical Department of the Navy during the absence of the Surgeon General and, by his quick grasp of essentials, his inherent ability to make immediate and correct decisions and his calm performance of duty under stress, contributed vitally to the successful operation of the Medical Department." Dr. Agnew graduated from the University of Vermont College of Medicine, Burlington, in 1914 and entered the service June 2, 1917.

Commander Julius M. Amberson

The Distinguished Service Medal was recently awarded to Comdr. Julius M. Amberson, formerly of Corpus Christi, Texas, "for exceptionally meritorious service to the government of the United States in a duty of great responsibility as medical officer in command of Epidemiology Unit No. 50, operating in Egypt, Lebanon, Turkey and East and South Africa over an extended period of time." The citation accompanying the award stated that, "obtaining protocols to establish the official presence of his unit in the East, Middle East and Africa, Commander Amberson conducted pioneer research in the treatment of Asiatic cholera and relapsing fever, developing the unit into a potent force in the control of endemic diseases, a source of sound basic research and creator of good will toward the United States. He maintained effective liaison with the United States Typhus Commission stationed in Egypt and later assumed responsibility for the commission's duties, equipment and continuing clinical investigations. In addition, he demonstrated the value of penicillin in treating the victims of relapsing fever. Introducing a revolutionary cure for Asiatic cholera after extensive and painstaking scientific and medical development, Commander Amberson applied this treatment in 500 cases of this ordinarily fatal disease and, by his efforts, prevented the loss of a single life in the test group, thereby bringing to mankind a new method of treatment which will undoubtedly save the lives of untold thousands in the years to come. Through his professional skill, administrative ability and great scientific motives maintained despite his continual exposure to fatal endemic diseases, Commander Amberson has made an outstanding contribution in the field of medical research, and his unwavering devotion to an important assignment reflects the highest credit on himself and the United States Naval Service." Dr. Amberson graduated from Rush Medical College, Chicago, in 1927 and entered the service Sept. 24, 1942.

Captain Don S. Knowlton

A gold star in lieu of a second Legion of Merit was recently awarded to Capt. Don S. Knowlton, Washington, D. C., for exceptionally meritorious conduct in the performance of outstanding services as division surgeon of a Marine infantry division during the planning for and conduct of operations against the Japanese enemy on Okinawa, Shima, Ryukyu Islands during the period from April 1 to June 21, 1945. "During the preparatory phase of the operation," stated the citation, "Captain Knowlton, with untiring efforts, supervised the organization and training of the medical battalion within the division. With keen technical skill and professional ability he trained his command to a high state of readiness for amphibious operations. During the assault phase of the operation the medical companies under his direction kept constantly in contact with the advancing front lines troops, offering prompt and efficient medical aid and surgical treatment to those wounded or injured in action. The ability of the individual corpsmen, the capabilities of the unit medical officers, the efficiency of the medical organization, the promptness of the evacuation of wounded, all attested to his brilliant leadership. Throughout the entire operation he demonstrated an extremely high degree of professional knowledge both as a member of the medical profession and as a naval officer. He kept constantly in touch with the rapidly changing tactical situation so that he might better employ the men of his command. His sound judgment, both tactically and medically, his inspiring leadership and his intense devotion to duty were ever an inspiration to the men of the division and aided materially in the furtherance of the operation. His actions throughout were in keeping with the highest traditions of the United States Naval Service." Dr. Knowlton graduated from Tufts College Medical School, Boston, in 1921 and entered the service Nov. 5, 1940.

Captain Theodore R. Meyer

The Cross of the Order of Taxiarchis was recently awarded to Capt. Theodore R. Meyer, Sag Harbor, L. I., N. Y., for services rendered to the population of Greece. Captain Meyer recently returned from Greece after ten months' duty as officer in charge of a special Navy epidemiologic unit formed at the request of the Greek government for the purpose of improving public health conditions in that formerly enemy occupied country. The unit that Captain Meyer headed, comprising four officers and ten hospital corpsmen, worked in close cooperation with the Greek Ministry of Health. Education of native physicians and technicians in the uses and administration of penicillin was undertaken. The epidemiologic unit established a school for instruction in laboratory procedures, conducted surveys of sanitary conditions in restaurants and other food handling establishments in the Athens-Piraeus area, instituted malaria control measures on small islands off the coast of Greece and furnished assistance, including the loan of equipment and materials, to the government's hygiene school. Dr. Meyer graduated from the Medical College of the State of South Carolina in 1924 and entered the service April 1, 1941.

With the generous cooperation of certain American citizens of Greek descent, Captain Meyer's unit has arranged for two Greek doctors to come to the United States for specialized study at the National Navy Medical Center, Bethesda, Md.

Lieutenant Commander Francis X. Sommer

Lieut. Comdr. Francis X. Sommer, formerly of Ashburnham, Mass., was recently commended "for distinguishing himself by excellent service as medical officer for the Commander Manila-Subic Harbor Clearance Group. On Aug. 11, 1945 a U. S. Army diver, having completed a dive in Mariveles Harbor, Luzon, Philippine Islands, experienced a severe case of bends. Lieutenant Commander Sommer diagnosed the critical condition of the man, used improvised equipment from enemy stores and then worked continuously for a period of more than two days until the patient was restored to health. For his outstanding performance of his duties he is commended and authorized to wear the Commendation Ribbon." Dr. Sommer graduated from Yale University School of Medicine in 1940 and entered the service July 1, 1941.

Commander Maksymiljan Robert Gelber

Comdr. Maksymiljan Robert Gelber, Aberdeen, S. D., was recently commended "for distinguishing himself by excellent service as senior medical officer of the Escort Carrier U. S. S. *Hoggatt Bay* during operations against the enemy in the Luzon (Manila-Lingayen) campaign, Philippine Islands, Jan. 1-23, 1945. During this entire period, by his skill and devotion to duty the general health of the crew was maintained at a remarkably high level. When a deck explosion occurred, Commander Gelber's department was so well organized that they not only handled the casualties in an outstandingly efficient manner but also effected a plan to lower stretcher cases to sick bay. For his conduct throughout he is commended and authorized to wear the Commendation Ribbon." Dr. Gelber graduated from the University of Minnesota Medical School, Minneapolis, in 1926 and entered the service May 15, 1941.

MISCELLANEOUS

AMERICA TYPHUS COMMISSION AWARDS

Dr. William W. Bolton

On February 13 Dr. William W. Bolton, assistant director of the Bureau of Health Education of the American Medical Association, Chicago, was presented with the United States of America Typhus Commission Medal in recognition of noteworthy service rendered in the control of typhus in Germany during the period March 6, 1945 to June 14, 1945. The presentation was made by Brig. Gen. John A. Rogers, U. S. Army, chief surgeon, Sixth Service Command. Dr. Bolton, who graduated at Jefferson Medical College in 1930, entered the Army of the United States July 1, 1945. His service terminated Jan. 13, 1946 with the rank of captain. While in Germany Dr. Bolton was in charge of a typhus team that was responsible for locating and isolating all persons with the disease.

Dr. Leonard A. Scheele

Dr. Leonard A. Scheele, senior surgeon, U. S. Public Health Service, was recently awarded the United States of America Typhus Commission medal for "exceptionally meritorious service" which helped prevent the spread of typhus in northwestern Europe during 1944-1945. Dr. Scheele served in the Mediterranean and European theaters of operation from May 1943 to September 1945 while on temporary duty with the Army Medical Department. As chief of the preventive medicine section, Public Health Branch, he took an important part in the development of policies, the determination of principles and the accumulation of supplies essential for typhus control among refugees and displaced persons in Germany and in allied countries of northwestern Europe. On his return from Europe Dr. Scheele resumed his activities with the Public Health Service and is now assistant chief of the National Cancer Institute at Bethesda. He was a consultant on cancer control at the institute for a number of years prior to his first wartime assignment in December 1942, which placed him with the Office of Civilian Defense as deputy for field medical operations.

Dr. Scheele joined the regular corps of the Public Health Service in July 1934. He graduated from Wayne University College of Medicine, Detroit, in 1934.

MEDICAL AND SURGICAL RELIEF COMMITTEE

The Medical and Surgical Relief Committee (420 Lexington Avenue, New York 17) in its annual report for 1945 announced through Mr. George L. Knoll, chief of procurement and distribution, that pharmaceutical supplies contributed during the year amounted to $29,859.99. The Medical and Surgical Relief Committee donates medical, surgical and dental supplies to meet authentic appeals from hospitals, missions and welfare organizations in all parts of the world. The fine cooperation of supply houses has enabled the committee to send otherwise unobtainable supplies to Italy, Greece, Africa, France, Korea, Czechoslovakia, the Netherlands, China, Nicaragua, Bolivia and Central America during the past year. In most of these areas doctors and dentists have been helpless to combat disease because of the complete lack of equipment. The Medical and Surgical Relief Committee meets emergencies of this kind by sending quickly enough basic material and instruments to permit clinical routine to be reestablished. Only those organizations which supply free service to patients are assisted.

UNRRA NEWS

Yugoslav Doctor to Study Latest Serum Technics in London

The United States Relief and Rehabilitation Administration, Washington, D. C., recently sent Dr. Mirke Stanic, Yugoslav serologist, to London to study the latest serology methods, according to a Belgrade report to the Washington headquarters of UNRRA.

The fullest use is now being made in Yugoslavia of UNRRA-supplied penicillin. At a recent meeting of the Yugoslav Federal Penicillin Center and the Belgrade Medical Society, special mention was made of the success of penicillin treatment in Yugoslavia and of the invaluable assistance given the country by the Health Division of the UNRRA Mission there.

Steps to forestall the introduction of bubonic plague also are being taken by the Sanitary Engineering Section of the UNRRA Mission, and preventive measures are being concentrated at ports on the Dalmatian coast.

PHYSICIANS SEPARATED FROM SERVICE

ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

California

Argens, Richard G., Capt., Napa State Hospital, Napa.
Arons, Joseph J., Major, Mt. Zion Hospital, San Francisco.
Avakian, Edward V., Major, 5009 Varna Ave., Los Angeles.
Blatherwick, Norman H., Capt., 3734 Olmsted, Los Angeles.
Bonfilio, Nicholas D., Capt., 810 Union St., San Francisco.
Brothers, Ridway H., Major, Alameda County Hosp., Oakland.
Burke, Simpson S., Jr., Capt., 1026 Tiverton Ave., Los Angeles.
Carlson, Elmer O., Capt., 320 Rosewood Ct., Ontario.
Chier, Reuben D., Capt., 600 N. Laurel Ave., Los Angeles.
Cook, Alfred L., Capt., 1009 W. 25th St., Los Angeles.
Disney, Edward K., Major, Vet. Adm., San Fernando.
Duncan, Herbert A., Major, 2900 Blanche St., Pasadena.
Eggleston, John R., Capt., 427 9th St., Santa Monica.
Ellenbogen, Leonard S., Major, Vet. Admin. Hospital, W. Los Angeles.
Feichtmeir, Thomas V., Capt., 212 Frisbie St., Oakland.
Freeman, Robert G., Major, 2170 Homet Road, San Marino.
Goddard, Chester R., Capt., 633 W. Maple St., Orange.
Gogol, Louis J., Capt., 2190 Talmadge St., Los Angeles.
Goodman, Max J., Major, 918 F St., Eureka.
Guernsey, Chester M., Major, 336 Broadway, Chico.
Leverton, William R., Lt. Col., Vet. Adm., San Fernando.
Levin, Edward, Capt., 5421 Dahlia Drive, Los Angeles.
McGuire, Frank A., Major, 730 N. Lincoln St., Stockton.
McKibbin, John, Capt., 353 W. Manchester, Los Angeles.
Maxwell, H. C., Lt. Col., 210 W. Santa Clara Ave., Santa Ana.
Mello, Henry G., Major, 2335 Clement Ave., Alameda.
Meltzer, Abe M., Capt., 244 Granada Ave., San Francisco.
Morgan, John Daniel Jr., Col., Bank of America Bldg., Fresno.
Murphy, John A., Capt., 1850 Sharon Pl., San Marino.
Olney, Millard P., Capt., 3875 Wilshire Blvd., Los Angeles.
Pray, Ralph E., Major, 416 Salinas Nat. Bank, Salinas.
Prisinzano, Gandolfo A., Capt., 1001 40th St., Sacramento.
Reeves, David L., Lt. Col., 306 E. Los Olives, Santa Barbara.
Rosser, Bernard H., Capt., 5029 Clinton St., Los Angeles.
Rothmann, Hans, Capt., 1755 Jackson St., San Francisco.
Rubinstein, Morris, Capt., Vet. Admin. Facility, Livermore.
Shear, Sidney P., Capt., 1680 N. Vine St., Los Angeles.
Skeoch, Gordon D., Capt., 312 N. Boyle St., Los Angeles.
Smith, William G., Major, 1332 Santa Barbara St., Santa Barbara.
Steinman, Morris J., Capt., 127 N. Flores St., Los Angeles.
Stern, Robert L., Capt., 414 N. Orange Dr., Los Angeles.
Strouse, Carl D., Capt., 955 N. Kings Road, Hollywood.
Swerdloff, Harold, Capt., Box 242, L. A. Co. G. H., Los Angeles.
Taylor, Charles M., Major, 2007 Wilshire Blvd., Los Angeles.
Tragerman, Leon J., Capt., 1750 N. Serrano Ave., Los Angeles.
Wilson, Kent R., Capt., 11-12 Carrillo Bldg., Santa Barbara.
Wright, Ralph W., Major, Atherton Ave., Atherton.

Colorado

Arndt, Karl F., Capt., 3100 E. Exposition Ave., Denver.
Bartholomew, Jack D., Major, 701 7th St., Boulder.
Bershof, Edward, Capt., 370 Birch St., Denver.
Blatherwick, Robert, Capt., 4200 E. 9th Ave., Denver.
Doty, Horace W., Jr., Capt., Vet. Adm. Facility, Ft. Lyon.
Echternacht, Evan E., Capt., 1930 S. Josephine St., Denver.
McGlone, Frank B., Major, 1000 S. Logan St., Denver.
Nims, Marshall G., Capt., Metropolitan Bldg., Denver.
Oxman, Albert C., Lt. Col., 1509 Decatur St., Denver.
Rogers, Anthony S., Capt., Box 136, Ft. Collins.
Sherwood, Robert O., Capt., 1026 Washington St., Denver.

Connecticut

Antell, Maxwell J., Capt., 763 Noble Ave., Bridgeport.
Biondi, Benedict, Capt., 120 Blatchley Ave., New Haven.
Buck, Burdette J., Major, 25 Cumberland St., Hartford.
Couture, Arthur J., Capt., 19 S. Main St., Moosup.
Crocker, David, Capt., 215 Bishop St., New Haven.
D'Ambruoso, Dominic C., Capt., 2104 Chapel St., New Haven.
D'Amico, Michael, Lt. Col., Middletown Ave., Clintonville.
Friedberg, Isadore H., Capt., Newington.
Harper, Paul A., Lt. Col., Old Orchard Park, Fairfield.
Lukoski, Walter A., 1st Lt., 52 Spring Garden Ave., Norwich.
McMahon, John D., Capt., Washington St., South Norwalk.
Perham, William S., Major, Newton Road, Woodbridge.
Phillips, Harry S., Major, 44 Church Lane, Westport.
Sullivan, Arthur B., Capt., 637 Park Rd., West Hartford.
Sutherland, Francis A., Lt. Col., 24 Mason St., Torrington.

District of Columbia

Burgess, Forbes H., Capt., 2505 13th St., NW, Washington.
Daily, Edwin F., Major, 4926 Albemarle St., Washington.
Hannan, Francis P., Capt., 1741 Church St., N.W., Washington.
Holtzmann, Saul, Capt., 6040 13th Pl., N.W., Washington.
Jenkins, Frank A., Capt., Gallinger Municip Hosp., Washington.
Litvin, Philip, Major, 3433 14th St., NW, Washington.
McNitt, Henry J. R., Major, 1835 Eye St., N.W., Washington.
Martin, George V., Jr., Major, 2909 Rittenhouse St., Wash.
Mattingly, Thomas E., Major, 2200 R. I. Ave., N.E., Wash.
Williams, Virgil B., Lt. Col., 3624 Davis St., N.W., Washington.

Georgia

Cohen, Jonathan, Capt., Central of Ga. Railway Hospital, Savannah.
Cressy, Norman L., Major, Harden Road, Atlanta.
McArthur, Charles E., Major, 216 11th Ave., Cordele.
McCarver, William C. Jr., Capt., Vidette.
Powell, Cuthbert E., Capt., Swainsboro.
Taranto, Morris B., 1st Lt., 425 10th St., N.E., Atlanta.
Thomas, Henry W., Jr., Major, Grady Hospital, Atlanta.
Wilcox, Everard A., Lt. Col., 1345 Greene St., Atlanta.

Idaho

Barnes, John F., Capt., Anderson Ranch Dam, Mt. Home.
Beck, Wilford W. Jr., Capt., 187 N. University, Blackfoot.
Davis, Ralph E., Major, Vet. Adm., Boise.
Dewey, Carroll W., Capt., Fort Hall Agency, Fort Hall.
Ellsworth, Preston B., Jr., Capt., Smith Bldg., Idaho Falls.

Illinois

Allen, Melvin A., Capt., 315 N. Oak, O'Fallon.
Anderson, Cyril W., Capt., 305 S. Clinton Ave., Oak Park.
Anderson, Kenning M., Capt., 605 N. Taylor Ave., Oak Park.
Barnai, Andrew P., Capt., 2319 W. Devon Ave., Chicago.
Barnard, Robert D., Capt., 4404 Drexel Blvd., Chicago.
Becker, Carl M., Capt., 54 N. Stewart Ave., Freeport.
Bedessem, Philip M., Lt. Col., 5230 Magnolia Ave., Chicago.
Beecher, Merrill C, Capt., 503 E. Main St., Knoxville.
Blaurock, M. F., Lt. Col., 1423 N. Williams St., River Forest.
Bond, Ian H., Capt., 6153 S. Mayfield Ave., Chicago.
Bonick, Thos. J., Capt., 1410 Vincennes Ave., Chicago Heights.
Borden, George, Capt., Mendon.
Brown, Francis, Capt., 201 Richman, Villa Grove.
Brown, Grover C., Capt., 1025 North St., Peoria.
Butner, Wendell B., Major, 904 W. Adams St., Chicago.
Chesnut, Nelson H., Major, 1604 W. Cook St., Springfield.
Ciulini, Fausto, Major, 6144 S. Kenneth Ave., Chicago.
Cohen, Melvin R., Capt., 520 Stratford Pl., Chicago.
Costigan, Clarence S., 1st Lt., 2028 7th Ave., Moline.
Delfosse, John F., Capt., 4073 Waveland Ave., Chicago.
DeWhirst, Ernest M., Major, 873 Fairchild St., Danville.
Dorsey, Dennis B., Capt., 2051 Sedgwick St., Chicago.
Dorton, Howard E., Major., 7200 Oak Ave., River Forest.
Entin, Samson D., Major, 3059 Ainslie, Chicago.
Eveloff, Abe R., Capt., East Hazel Dell, Lake Springfield.
Faden, Gerson, Capt., 123 N. Main St., Moweaqua.
Fell, Egbert H., Major, 7357 Merril Ave., Chicago.
Fioretti, Carlo A., Capt., 14926 Center Ave., Harvey.
Fireman, Joseph, Capt., 1032 E. 43d St., Chicago.
Fitzmaurice, Harry A., Capt., 8131 S. Evans Ave., Chicago.
Fonner, Robert M., Major, 3225 N. Laramie Ave., Chicago.
Goldenberg, Max, Major, 234 Collinsville Ave., East St. Louis.
Gondek, Frank R., Capt., 1442 S. Michigan Blvd., Chicago.
Goode, Delmar, Col., Vet. Adm., Downey.
Greenwood, Lilburn S., Lt., Col., Rockford.
Grizzaffi, Anthony L., Capt., 1823 W. Garfield Blvd., Chicago.
Grossman, Edward S., Capt., 3319 Cullom Ave., Chicago.
Grossman, Harry D., Capt., 7952 Eberhart Ave., Chicago.
Hamilton, George R., 1st Lt., Hartsburg.
Hamilton, Henry E., Capt., 716 N. East Ave., Oak Park.
Hawthorne, Roy O., Lt. Col., 512 S. Chicago, Kankakee.
Hoiden, Alwin J., Lt. Col., 6424 Newgard Ave., Chicago.
Holtz, William E., Capt., 2955 N. Moody Ave., Chicago.
Hubner, Charles F., 1st Lt., 9130 Fairview Ave., Brookfield.
Hultgen, Francis J., Capt., 1518 Garfield Blvd. W., Chicago.
Hurwich, Arthur R., Capt., 3704 Lawrence Ave., Chicago.
Jack, Nelson B., Capt., 134 W. Prairie Ave., Decatur.
Jeffries, Milo E., Capt., 5842 Stony Island Ave., Chicago.
Kaplan, Sidney J., Capt., Cook County Hospital, Chicago.
Kayne, Jerry, Major, 2647 N. Talman Ave., Chicago.
Krause, Charles D., Lt. Col., 1819 W. Polk St., Chicago.
Leavitt, Samuel S., Capt., Orland Park.

PHYSICIANS SEPARATED FROM SERVICE

Illinois—Continued

Leroy, George V, Lt Col, 1713 W 95th St Chicago
LeVan, Franklin P, Capt, 8322 S Throop St Chicago
Levine, Howard J, Capt, 5507 Gladys Ave, Chicago
McNertney, Francis D Major, 1417 N Main St Bloomington
McRae, Louis A, Capt, 612 Myers Bldg Springfield
Makart Carl D, Major, 1123 Noble St, Chicago
Manelis, Samuel L, Capt, 917 S Independence Blvd, Chicago
Matzkin, Lloyd L, Capt, 1349 S Keeler Ave, Chicago
Matzner, Irving A, Capt, 6139 N Mozart St, Chicago
May, Martin M, Capt, 512 S Market St, Marion
Merar, Thos James Major, 8 S Michigan Blvd Chicago
Miller, Walter U, Capt, 15 Milburn Ave, Crete
Millet Roscoe F, Major, 232 E Jackson Macomb
Mindrup, Robert G, Capt, 802 W Carpenter S, Jerseyville
Mongeau Donald C, Capt, 8131 S Vernon Ave Chicago
Moore, Bert E, Major 813 Chandler Danville
Morris, Charles I, Capt, 555 Surf St, Chicago
Murphy, Raymond B, Major, Cook County Hosp, Chicago
Nelson, Lorenzo R, Major, 4734 South Parkway, Chicago
Nierenberg, Paul S, 1st Lt, Albion
Oden, Joshua Jr Capt 4108 N Harding Ave Chicago
Olmsted, Randolph F, Col, 100 S Prospect Ave, Park Ridge
Orndorff, John R, Capt, 1044 Forest Ave, River Forest
Parker Forest C, Major 8 Center St, Danville
Petrazio Joseph A, Capt Ava
Peven, Philip S, Capt Michael Reese Hospital, Chicago
Phibbs Brenden P, Major, 675 Blackthorne Road Winnetka
Potts, Willis J, Col, 619 Fair Oaks Ave Oak Park
Pritikin, Roland I, Lt Col, 927 N Court St, Rockford
Raymond, Sidney W, Lt Col, 1506 Franklin Ave River
Forest
Rayson, Edwin H, Capt, Grant St, Earlville
Reeder, Clifton L, Major, 1306 Walnut Eldorado
Robbins, Fred P, Capt, 3816 W Wrightwood Ave, Chicago
Rodriguez, Antonio Lt Col Vet Admin Hospital Downey
Rosenblum, Alfred H Major 4721 N Central Park, Chicago
Rosenthal, Martin J, Major, 1225 N Marquette, LaSalle
Rubin, Harold X, Capt, 3610 Douglas Blvd, Chicago
Rudens Maurice C Capt, 5717 Dorchester Ave, Chicago
Schochet, Sydney S, Capt, 619 Normal Ave, Normal
Schreiber, Norman J, Capt, 1001 N 5th Ave, St Charles
Schweitzer, Edmund H, Capt, 120 Sherman Ave, Peoria
Seaton, Ralph M Capt, Morrisonville
Seidmon, Edward Edgar P Major, 5503 Gladys Ave, Chicago
Seifert, Edward H Lt Col, 182 N Prairie St, Galesburg
Shaftel, Norman Capt 629 Deming Pl, Chicago
Sharer, Robert F, Lt Col, 445 N Lombard, Oak Park
Shinglman, Willard E, Major, 4930 W 13th St, Cicero
Sodaro, Eugene J, Capt, 4233 Gladys Ave, Chicago
Sofield, Harold A, Col 620 Keystone Ave River Forest
Sonenschein, Benjamin 1st Lt Box 426, Chenoa
Sowden, Paul R, Capt, 1918 Harrison St, Evanston
Svejda, Arthur J, 1st Lt, 724 S Kenilworth Oak Park
Swantz, Henry E, Lt Col, 423 Forest Ave, Oak Park
Tidwell, John W Capt, 821 S 14th St, Herrin
Urban, Steven B, Capt 5930 Lawrence Ave, Chicago
Wade, Chester, Capt, 3251 W 61st Pl, Chicago
Westen William C, Capt 945 N Elmwood Ave, Oak Park
White, Harvey, Capt, 5718 S Drexel Ave, Chicago
Winograd, Alvin M, Capt 7424 Chapel Ave, Chicago
Wiza, Francis L, Capt, 4800 S Karlov Ave Chicago
Woodruff, Lewis W, Major, 953 Western Ave Joliet
Zee Maurice L, Capt, 1412 Chase Chicago

Indiana

Brown, Robert M, Major, 510 Marion Nat Bank, Marion
Clowes, George H A Jr 1st Lt, 3744 Spring Rd Indianapolis
Dearmin Robert M, Major, 5147 N Delaware, Indianapolis
DeArmond Albert M, Lt Col, 723 Hume Mansur Bldg,
Indianapolis
Hostetter Irwin Stuart, 1st Lt Ball Memorial Hosp, Muncie
Ingersoll Charles F, Lt Col 3136 N Ill St, Indianapolis
Kirch Leo N Capt, 1319 Leonard St, Indianapolis
Lawrence, Joseph C Capt, 421 Lewis Ave, Evansville
Lidikay, Edward C, Capt Ladoga
Milton Thomas H Capt, 2 Beech Grove Ave, Batesville
Mueller, Lawrence W, Major, Fairfield Manor, Ft Wayne
Newton William H, Lt Col, General Delivery Hamlet
Ramsey, Frank B, Lt Col 23 E Ohio St Indianapolis
Ratcliff, Frank W, Major, 612 E 28th St La Fayette
Shields, Jack E, Capt, Medora
Sholty, William M, Capt, 626 Columbia St La Fayette
Shuck, William A, Major, 403 W 2nd St, Madison

Indiana—Continued

Stanley, John S Capt, 3716 Main St, East Chicago
Stecy, Peter, Capt, 2108 New York Ave, Whiting
Stephens, Lowell R Major, Covington
Stroup, Tyler I, Major, 3323 College Ave, Indianapolis

Iowa

Bettler, Philip L, Lt Col, 1902 S Palmetto, Sioux City
Bishop, James F, Major, 1313½ Harrison St, Davenport
DeYoung, Ward A Capt Glenwood
Ehrenhaft, Johann L, Capt, S U T Hospital Iowa City.
Evans, William I Capt, 920 Early St Sac City
Goldberg Louie Capt, Hotel Ft Des Moines Des Moines
Herrick Thomas G, Capt. Hubbard
Lehman Emery W Major 4817 Pleasant St Des Moines
Martin, Ronald F Capt, 112 20th St, Sioux City
Mattice, Lloyd H, Capt, Danbury
Ptacek Joseph L, Capt, 713 Willson St, Webster City
Saar, Jesse L, Major, Donnellson
Shaw, Ernest E, Major, 811 N Buxton St, Indianola
Stadler, Harold E, Capt, State U Hosp, Iowa City

Kansas

Dunlap, Richard L, Major, 3118 Dorr St, Topeka
Edwards, Theodore I, Capt, 58th & Mastin Rd Merriam
Ford, Frederick L, Capt, 861 Rockledge, Topeka
Miles, Paul W, Capt 222 E 7th St, Newton
Mollohan, Morgan L, Capt, Arcadia
Newman, Clifford B, Capt, 617½ N Broadway St, Pittsburg
Prochazka Otto F, Major, 3201 W Douglas, Wichita
Taggart, Floyd C, Capt, 1811 Westwood Dr, Topeka

Kentucky

Carter, Tim L, Capt, Tomkinsville
Coleman, Thomas B, Capt, 4919 Southern Parkway, Louisville
Elliott, Richard G, Lt Col 8 Mentelle Park, Lexington
Fish Carlos A Jr, Lt Col 1221 Cherokee Road, Louisville
Lamb William F, Lt Col, Russellville
McAllister, Max F, Lt Col, U S Vet Hospital, Outwood
Miller, Oliver P, Lt Col, Vet Adm Fac, Lexington
Pryor, George E, Jr, Capt, Phoenix Bldg, Hopkinsville
Reid, Benjamin A, Capt, 3514 W Broadway, Louisville
Scott Frederick, A, Capt, 614 N Scott St, Madisonville
Solomon, Edwin P Jr, Capt 2312 Alta Avenue, Louisville
Young, John D, Jr, Capt, 220 Loudon Ave, Lexington

Louisiana

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Collins, Jason H, Capt, 2105 Gen Pershing St, New Orleans
Eurbeck, George N, Capt, 7930 Freret St, New Orleans
Garland, William J, Lt Col P O Box 36 Logansport
Karlin, S, Major, 6200 Hurst St, New Orleans
Kinberger, Frank R, Capt, 547 Esplanade Ave, New Orleans
Mancuso, Bruno F, Capt 2109 Alvar, New Orleans
Mogabgab, A Col, 2 Versailles Blvd, New Orleans
Montgomery James B Major 402 Jefferson Blvd Lafayette
Prouet, Prudence E, Major, 4902 Franklin Ave, New Orleans
Richardson Arthur J Jr Capt Charity Hosp New Orleans
Stamm Joseph, Major, 1403 Delachaise St New Orleans
Tatum, Sherard A, Capt, Homer

Maine

Bonanno Anthony M, 1st Lt, PO Box 71, Berwick
Bourassa Harvey J, Capt 13 Benton Ave, Waterville
Bousquet Jean J Capt, 91 Bartlett St Lewiston
Burrage, William C, *Capt*, 53 *Chadwick St Portland*
Clough, Herbert T, Jr Capt 209 State St, Bangor
Geer, George I, Jr, Capt 61 Hurley St, Portland
Getchell, Ralph A, Lt Col 321 Brackett St Portland
Heifetz Ralph, Major 61 Exeter St Portland
Houlihan John S Major 46 Fern St Bangor
Larkin Donald F, Major, 4 West St Waterville
Tounge, Harry G Capt 12 Union St, Camden
Tower, Elmer M Major Ogunquit
Viles, Wallace E, Capt Turner
Witte Max F, Capt, State Hospital, Bangor

Maryland

Aubrey, John F, Lt Col Temple Court Apts, Baltimore
Castagna Joseph V, Lt Col, 3806 Greenway, Baltimore
Cooper, Donald D, Major, 101 Burke Ave, Towson
Fox, Henry M, Lt Col, 1739 Eutaw Pl, Baltimore
Frick, John P, Lt Col, 814 Professional Bldg, Kansas Cit
Gay, James R Major, Johns Hopkins Hospital Baltimore
Goodwin Willard E, Capt, 529 N. Wolfe St, Baltimore.

PHYSICIANS SEPARATED FROM SERVICE

Maryland—Continued

Greenwald, Eugene, Capt., Friendsville, (Box 43).
Katzenstein, Lawrence, Major, 2203 Linden Ave., Baltimore.
Kemick, Irvin B., Capt., 3736 Towanda Ave., Baltimore.
Kimberly, Robert C., Lt. Col., Catonsville.
Kleinschmidt, Earl E., Major, 112 Quincy St., Chevy Chase.
Kundahl, Paul C., Capt., P.O. Box 47, Germantown.
Moore, James L., Lt. Col., 206 Park Drive, Catonsville.
Murphy, Franklin D., Capt., 5300 Belleview, Kansas City.
Quill, Thomas H., Capt., 208 Rockwell Terrace, Frederick.
Savage, John E., Major, 311 Thornhill Road, Baltimore.
Thompson, Winfield L., Capt., Kingston.

Massachusetts

Andaloro, Vincent A., Capt., 613 Broadway, Everett.
Angelo, Peter J., 1st Lt., Norfolk County Hospital, Braintree.
Asselin, Elzear F., Major, 554 Western Ave., Lynn.
Babb, Warren D., Capt., 40 Chestnut, Salem.
Baker, Myles P., Lt. Col., 70 Fairmount St., Brookline.
Bennett, William H. Jr., Major, 31 General Cobb St., Taunton.
Blais, Robert E., Capt., 165 Main St., Amesbury.
Bookstein, Jacob, 1st Lt., 322 Blue Hill Ave., Roxbury.
Brem, Jacob, Lt. Col., 27 Elm St., Worcester.
Coffey, John H., Major, 32 Grove St., Brockton.
Cohen, Benjamin, Major, Grafton State Hospital, North Grafton.
Cohen, Sidney S., Capt., 4 Montvale Rd., Newton.
Denning, Walter S., Capt., 28 Davis Ave., Brookline.
Denny, George P., Col., 274 Beacon St., Boston.
Donovan, John H., Capt., 34 W. Main St., Orange.
Failla, Samuel D., Major, 48 Haywood St., Greenfield.
Fanelli, Raymond J., Capt., 50 Main, W. Springfield.
Freedman, Jacob P., Major, 84 Brunswick St., Boston.
George, Arnold P., Major, 78 Chestnut St., Haverhill.
Grace, Sydney, Capt., 4 Overlook Park, Newton Center.
Green, Milton M., Capt., 63 Armandine St., Dorchester.
Ham, Donald P., Lt. Col., 219 Aspinwall Ave., Brookline.
Hamblett, John B., Major, 495 Varnum Ave., Lowell.
Hamilton, Harold H., Lt. Col., 70 Court St., Plymouth.
Harrington, Philip V., Capt., Southborough.
Hosman, Israel D., Capt., 188 School St., Chicopee.
Houle, Emile A., Capt., 256 Willard St., Dracut.
Kaufmann, Gustav G., Lt. Col., 15 School St., Andover.
Kaufman, Maurice, Capt., 231 Park Dr., Boston.
Kees, Philip A., Capt., 31 Sylvan St., Longmeadow.
LeBaron, Francis E., Major, 27 Leydon St., Plymouth.
Lee, Joshua M., Capt., 1033 Beacon St., Brookline.
Levins, Leo V., Major, 128 Longwood Ave., Brookline.
Ludwig, Alfred O., Major, 86 Juniper Road, Belmont.
Mangione, Bernard J., Major, 740 Bedford St., Fall River.
Mazer, Mendel, Capt., 293 Bridge St., Springfield.
Mellen, Harry J., Capt., 18 Northumberland Rd., Pittsfield.
Milone, Antonio P., Capt., 4354 Washington St., Roslindale.
Moore, Ralph C., Capt., 721 Huntington Ave., Boston.
Morrison, Philip J., Capt., 66 Revere St., Boston.
O'Brien, John F., Major, 77 Payson Road, Chestnut Hill.
Owen, Charles K., 1st Lt., 52 Bartlett Ave., Pittsfield.
Parnes, Jacob, 1st Lt., 7 Main St., Leominster.
Pfeifer, Ladislaw E., Capt., 326 Springfield St., Springfield.
Pier, Arthur S., Jr., Major, 539 Brush Hill Rd., Milton.
Pollock, Henry M. Jr., Capt., 8 Monument Ter., West Medford.
Record, Eugene E., Major, 41 Pilgrim Rd., Boston.
Richmond, Eugene L., Capt., 857 Pleasant St., Worcester.
Rogers, Howard W., Capt., 83 High St., Newburyport.
Scribner, Robert A., Capt., 190 North Ave., Haverhill.
Secunda, Lazarus, Major, 134 Sutherland Rd., Brighton.
Soutter, Lamar, Major, 13 West Cedar St., Boston.
Staples, Clark, Capt., 180 Sumner St., Malden.

Michigan

Bennett, Matthew C., Capt., 174 Fisher Rd., Grosse Pt. Farms.
Beresh, Louis, Capt., 2456 Atkinson, Detroit.
Black, Franklin R., Capt., % Mrs. B. E. Black, 219 Park, Traverse City.
Cook, James C., Major, Harper Hospital, Detroit.
Cross, Kenneth R., Major, Receiving Hospital, Detroit.
DeWitt, Norman L., Capt., 802 Hanselman Bldg., Kalamazoo.
Feldman, Nathaniel L., Major, 2961 Elmhurst Ave., Detroit.
Furlong, Harold A., Col., 207 Navajo Road, Pontiac.
Ginsberg, Harold L., Capt., 1555 W. Davison St., Detroit.
Gitlin, Charles, Capt., 1610 Glendale Ave., Detroit.
Howes, Homer A., Major, E. Quadrangle, Ann Arbor.
Johnson, Ward R., Capt., 733 Prospect St., Flint.
Juliar, Joseph F., Capt., 104 South Ave., Mt. Clemens.
Levine, Edward E., Capt., 540 Maccabee Bldg., Detroit.
Lofstrom, James E., Lt. Col., 1631 Taunton Ave., Birmingham.

Michigan—Continued

Seidel, Karl E., Capt., 256 E. Washington, Ionia.
Smith, Clifton H., Lt. Col., Vet. Adm., Dearborn.
Stone, Ethon L., Capt., 9069 N. Martindale, Detroit.
Tear, Malcolm J., Capt., 18445 Woodingham Drive, Detroit.
Wilson, Charles S., Lt. Col., 2170 E. Jefferson, Detroit.
Witus, Carl, Capt., 18440 Fairfield, Detroit.

Mississippi

Barkley, Thomas J., Major, Isola.
Coe, James E., Capt., Leland.
Hudson, Lawrence B., Lt. Col., 709 Hall Ave., Hattiesburg.
Hurt, Albert D., Major, 1109 Taylor St., Corinth.
Johnston, Walter E., Major, Vicksburg.
McCalip, Hugh L., Lt. Col., Yazoo City.
Massengill, Robert C., Major, South Church St., Brookhaven.
Terrell, Vernon L., Capt., 612 High School Ave., Columbia.

Missouri

Brams, Jack B., Capt., 306 E. 12th St., Kansas City.
Campbell, James W., Major, 429 W. 61 Terrace, Kansas City.
Clark, Ray A., Major, 4103 Euclid St., Kansas City.
Curtis, William S., Major, 500 Security Bldg., St. Louis.
Fleming, Royall B., Major, 2548 Paseo, Kansas City.
Graul, Elmer G., Capt., 4141-a Magnolia St., St. Louis.
Hamilton, Eugene H., Major, 200 North 20th, Hannibal.
Mackey, John F., Jr., Capt., 3520 Chippewa, St. Louis.
McNew, William T., Capt., 1204 S. Main St., Carthage.
Neubauer, D. W., Capt., 16 Hanley Downs, Richmond Heights.
Schmiemeier, Roy H., Capt., 6217 Delor St., St. Louis.
Schulte, Gregory A., Lt. Col., 2016 Pennsylvania Ave., Joplin.
Silsby, Harry D., Major, 2018 S. Hampton St., Springfield.
Smith, Louis J., Capt., Main & Mill St., New Madrid.
Sullivan, Clement J., Major, 5904 Enright, St. Louis.
Sutton, Richard L. Jr., Major, 31 E. 62 St., Kansas City.
Tenaglia, Eutimio D., Major, Route 2, Box 562, Clayton.
Thurston, Donald L. E., Capt., 4 Oakleigh Lane, Clayton.
Tracy, Herbert A., Capt., 434 N. Pine St., Perryville.
Wakeman, Jasper N., Capt., 1102 Meadowmere, Springfield.

Montana

Borkon, Maurice, Capt., 834 2nd Ave., W., Kalispell.
Bush, Thaddeus F., Major, Va. Apts., Wash St., Butte.
Holcomb, Mark D., Major, 525 Third St., Whitefish.
Moffitt, George J., Capt., PO Box 14, Livingston.
Murphy, Edward S., Col., 308 Eddy Ave., Missoula.
Murphy, James E., Major, West 3d St., Whitefish.
O'Keefe, Neil J., Capt., 220 W. Porphyry St., Butte.
Pemberton, Charles W., Major, Murray Clinic, Butte.

Nebraska

Buhl, Clayton E., Major, Mullen.
DeLong, Henry L., Capt., 4801 Chicago St., Omaha.
Formanack, Carl J., Capt., Murdock.
Kennedy, James F., Capt., Box 804, Butte Ave., Alliance.
Krieg, Jacob, Jr., Major, Univ. Hosp., 42d & Dewey, Omaha.
Loudon, John R., Major, 1715 S. 22d St., Lincoln.
McCleery, Daniel P., Major, 112½ S. 6th St., Beatrice.
McNeil, John S., Capt., St. Elizabeth Hospital, Lincoln.
Merselis, Harold K., Capt., North Bend.
Nemec, Edward C., Lt. Col., 4565 Shirley St., Omaha.
Owen, Donald R., Capt., 211 Emmett, Omaha.
Read, Paul S., Major, 7009 Minne Lusa Blvd., Omaha.
Winter, Robert C., Major, Western.

New Hampshire

Barton, Donald G., Major, Concord.
Daniels, Philip B., Major, 67 Summer St., Keene.
Flanagan, Donald J., Major, 107 Green St., Somersworth.
Fortier, Norman L., Capt., 55 Mt. Forist St., Berlin.
Moors, Charles E., Jr., Capt., 16 Wakefield St., Rochester.
Tracy, Ellsworth M., Capt., 1 South St., Concord.

New Jersey

Andricks, Eugene A., Major, 99 Sheridan Ave., Hohokus.
Baer, Irving, Capt., 801 Boulevard Ave., Bayonne.
Baldwin, William H., Capt., 152 Penna. Ave., Paterson.
Balsamo, Joseph J., Capt., 224 S. 8th St., Newark.
Bresev, Morris, Capt., 36 Stegman St., Jersey City.
Brotman, Harry A., Capt., 808 S. 11th St., Newark.
Brown, John L., Capt., 1019 Cumbermede Road, Palisade.
Burnett, Lawrence F., Capt., 386 Roseville Ave., Newark.
Carusi, Leonard G., Capt., 337 Park Ave., Paterson.
Clark, John C., Major, 501 Grand Ave., Asbury Park.
Cope, James C., Capt., 20 Cornell Road, Glassboro.

PHYSICIANS SEPARATED FROM SERVICE

New Jersey—Continued

Danzis, Louis, Major, 94 Lyons Ave., Newark.
David, Leopold S., Capt., 1404 Baird Ave., Camden.
Defelice, Mario T., Capt., 28 Mount Airy Rd., Bernardsville.
Doktor, David, Capt., 288 Hamilton Ave., Paterson.
Ebner, Paul G., Capt., 408 Overhill Rd., Haddonfield.
Egel, Norman, Major, 917 Steele Ave., Plainfield.
Fath, Marcus A., Capt., 200 W. Poplar Ave., Wildwood.
Featherston, Daniel F., Lt. Col., 506 4th Ave., Asbury Park.
Germain, Raymond J., Capt., Main St., High Bridge.
Gordon, Samuel, Capt., 540 Park Ave., Paterson.
Gottlieb, Morris, Major, 9 S. Swarthmore Ave., Ventnor City.
Hummel, Frederick W., Capt., 916 4th Ave., West Belmar.
Joffe, Philip M., Capt., 415 18th Ave., Paterson.
Keitlen, Philip B., Capt., 3 Paulmier Place, Jersey City.
Lakiszak, R. T., Capt., 175 Jackson Ave., Jersey City.
Loeser, Lewis H., Lt. Col., 27 Glenside Road, South Orange.
Loksa, Harold T., Capt., 520 Washington St., Boonton.
McCarthy, William P., Capt., 1203 Parkside Ave., Trenton.
Mackowsky, Edwin, Capt., 241 2d St., Jersey City.
Marcus, Donald, Capt., 640 Stuyvesant Avenue, Irvington.
Megibow, Raymond S., Capt., 6051 Boulevard East, West New York.
Moore, James A., Major., 99 S. Mountain Ave., Montclair.
Palmeri, Anthony F., Capt., 44 Palmer St., Passaic.
Paul, Abraham, Capt., 1001 Arctic Ave., Atlantic City.
Pearl, Sidney S., Capt., 545 Rahway Avenue, Elizabeth.
Pennoyer, James, Major, 515 Bloomfield Ave., Montclair.
Richlin, Padie, Major, 316 George St., New Brunswick.
Ringe, Charles L., Jr., Capt., 412 Winthrop Road, Teaneck. (Mailing address: Meadowbrook, N. Y.)
Rocco, Leo C., Major, 75 Maple Avenue, Red Bank.
Ruccia, Arthur J., 1st Lt., 93 Mt. Prospect Ave., Newark.
Sax, Charles E., Major, St. Joseph Hosp., Paterson.
Scanlan, David B., 1st Lt., 155 S. Ill. Ave., Atlantic City.
Seidman, Joshua I., Capt., 16 Seymour Ave., Newark.
Sewall, Arthur D., Major, 195 E. Commerce St., Bridgeton.
Spinnler, Henry R., 1st Lt., 93 Lee Ave., Haledon.
Stetser, Leland M., Capt., 920 Haddon Ave., Collingswood.
Vann, Felix H., Capt., 63 Spring Lane, Englewood.
Wright, Herman W., Capt., 818 S. Broadway, Pitman.
Zuckerberg, I., Capt., 31 E. 32nd St., Bayonne.

New Mexico

Edahl, Edwin W., Capt., 138 W. Manhattan Ave., Santa Fe.
Gonzalez, Saturnino M., Major, Laughlin Bldg., Santa Fe.
Pond, Ashley, Capt., Taos.

New York

Alessi, Alfred Charles, Capt., 1222 Pine Ave., Niagara Falls.
Allen, Arthur C., Major, 303 E. 20th St., New York.
Allen, Benjamin I., Capt., 721 Walton Ave., New York.
Allentuck, Samuel, Major, 1840 Grand Concourse, Bronx.
Allison, William E., Major, 24 Mexico St., Camden.
Alterbaum, George, Capt., 2470 E. 21st St., Brooklyn.
Altschuler, Stanley, Capt., 1381 53d St., Brooklyn.
Amorosi, Edward J., Capt., 34-14 Ninth St., Long Island City.
Anderson, Albert V., Capt., 1005 St. Nicholas Ave., New York.
Annunziato, Augustine J., Capt., 280 E. 162 St., New York.
Appel, Jesse, Capt., 40 Louisa St., Brooklyn.
Babcock, James W., Col., 20 E. 53d St., New York.
Bacon, Arthur H., Capt., 253 Cumberland St., Brooklyn.
Barber, Charles R., Lt. Col., Box 232, Comstock.
Barrett, George S., Capt., 214 Glen Ave., Scotia.
Beil, Arthur R., Major, 550 3d St., Brooklyn.
Bein, Solomon S., Major, 1690 E. Seventh St., Brooklyn.
Bellafiore, Vincent, Capt., 97-33 75th St., Ozone Park.
Bergen, Harold G., Capt., 34 Gold St., Norwich.
Berglas, Jacob B., Capt., 1991 E. 4th St., Brooklyn.
Berk, Charles, Capt., 350 Lefferts Ave., Brooklyn.
Berkowitz, Maxwell, Lt. Col., 696 Eastern Pkwy, Brooklyn.
Berkowitz, Samuel, Capt., 665 Ocean Pkwy, Brooklyn.
Berliant, Meyer H., Capt., 1956 Crotona Parkway, Bronx.
Bernstein, Harold, Capt., 140-11 Ash Ave., Flushing.
Bernstein, Isidor, Capt., 2013 77th St., Brooklyn.
Bernstein, Samuel, Capt., 1660 Topping Ave., New York.
Bliss, Robert C., Capt., 908 Warren St., Hudson.
Bloomberg, Allan E., Major, 214 W. 72d St., New York.
Blumberg, Ralph, Capt., 3622 Avenue M, Brooklyn.
Bomse, Emanuel M., Capt., 1245 50th St., Brooklyn.
Borkow, Philip S., Major, 755 Ocean Ave., Brooklyn.
Borzilleri, James R., Capt., 9 Colonial Circle, Buffalo.
Bottino, Clement G., Capt., 540 E. 187 St., Bronx.
Bowden, Lemuel, Capt., 444 E. 68th St., New York.

New York—Continued

Boynton, Perry S., Jr., Capt., 136 E. 67th St., New York.
Bradner, Morris R., Col., 22 Maple Ave., Warwick.
Brickner, Merol E., Capt., 161 First Ave., Gloversville.
Bridgham, Samuel W., Capt., 152 E. 94th St., New York.
Brimson, James A., Capt., New City Hosp., New York.
Brindisi, Arturo A., Capt., 289 Webster Ave., New Rochelle.
Brown, Henry, Capt., 823 E. 147th St., New York.
Brown, Robert E., Major, 330 S. Tenth, Mt. Vernon.
Browne, William F. Jr., Capt., 133 Bushwick Ave., Brooklyn.
Brumberger, Gustave N., Capt., 116-05 230 St., St. Albans.
Bursen, Earl P., Capt., 53 E. 55th St., Brooklyn.
Bush, Hubert S., Major, 151 Onslow Place, Kew Gardens.
Button, William H, Jr., Major, 151 E. 80th St., New York.
Charet, Richard, Major, 950 50th St., Brooklyn.
Chiarello, Augustus V., Capt., 343 76th St., Brooklyn.
Childress, Harold M., Major, 15 E. 4th St., Jamestown.
Cogen, Murray, Capt., 36 Ludlow St., New York.
Cohn, Hans J., Capt., Woodstock.
Cohn, Mortimer M., Major, 2868 W. 31st St., Brooklyn.
Colton, Benjamin, Capt., 33-20 150th St., Flushing, L. I.
Colvin, William P., Capt., 147 5th Ave., New Rochelle.
Connolly, Harold X., Capt., 320 E. 201 St., New York.
Connor, John E., 1st Lt., 325 Glenwood Ave., Rochester.
Constad, Arnold N., Capt., 201 Linden Blvd., Brooklyn.
Constantine, Frank H., Major, Manhattan Eye & Ear Hospital, New York.
Cunningnam, John E., Capt., 44 Elm St., Warrensburg.
Curtis, Dean, Lt. Col., 140 E. 54th St., New York.
Dalmain, Walter A., Capt., 194 Bedford Road, Pleasantville.
Danciger, Jacob A., Major, 12 E. 97th St., New York.
Daniel, Walter A., Capt., Kings County Hospital, Brooklyn.
Davidson, Arnold, Capt., 2045 Gleason Ave., Bronx.
DeNicola, Vincent J., Major, 35-21 86th St., Jackson Heights.
Deutsch, Theodore M., Capt., 1416 Avenue I, Brooklyn.
Diamond, Irving, Capt., 2108 Harrison Ave., Bronx.
DiFabio, Francis X., Capt., 34-18 29th St., Long Island City.
Donaldson, Kenneth T., Capt., 729 Seventh Ave., New York.
Donato, Marion T., Major, 331 Foote Ave., Jamestown.
Drexler, Bernard, Capt., 27 Harlem St., Rochester.
Duhan, Eliot, Capt., 120-11 103d Ave., Richmond Hill.
Eggers, H., Major, 4338 Vireo Ave., New York.
Ehrlich, Joseph C., Capt., 275 W. 11th St., New York.
Eisen, Milton J., Lt. Col., 70 Park Terrace West, New York.
Eisler, Herbert, Capt., 267 E. 7th St., New York.
Elder, Maurice James, Capt., 30 Whitney St., Massena.
Enzien, Ernest, Capt., 28 Francis St., Mechanicville.
Etkin, Sidney I., Capt., 199 Seeley St., Brooklyn.
Fazio, Michael G., Capt., 1426 69th St., Brooklyn.
Feder, Isidore A., Lt. Col., 1317 E. 23rd St., Brooklyn.
Feely, Edward J., Capt., 300 11th St., Brooklyn.
Feit, Emanuel, Capt., 2092 Davidson Ave., New York.
Feldman, Max, Capt., 540 Rockaway Pkwy., Brooklyn.
Fink, Frank E., Capt., 161 W. 75th St., New York.
Fleck, Henry, Capt., 1206 Washington Ave., New York.
Fliegelman, Charles H., Capt., 2078 Creston Ave., New York.
Ford, William G., Major, 159 Heath St., Buffalo.
Fosco, William N., Capt., 2501 Laconia Ave., Bronx.
Franks, Andrew G., Major, 313 E. 17th St., New York.
Fratkin, Max, Capt., 446 Kingston Ave., Brooklyn.
Freed, Leon C., Major, Greenwood Lake.
Geib, Fred W., Major, 1100 Park Ave., Rochester.
Geiger, Herwald B., Maj., 34-15 94th St., Jackson Heights, L. I.
Geller, Hyman, Capt., % Max Jaffe, 51 Bell St., Hempstead
Gersten, David, Capt., 510 E. 6th St., New York.
Gikow, Herman, Capt., % Kronick, 917 Sheridan Ave., N. Y. C.
Glassman, Herman, Capt., 2114 Albemarle Rd., Brooklyn.
Godfrey, Joseph D., Major, 175 Cazenovia St., Buffalo.
Goldsmith, Morris, Capt., 231 Amboy St., Brooklyn.
Goldstein, Abe S., Major, 554 Schenck Ave., Brooklyn.
Goldstein, Philip, Col., 8651 21st Ave., Brooklyn.
Gordon, Hirsch L., Capt., 605 Beech Terrace, Bronx.
Greenburg, Avrom M., Major, Whitesville.
Greenlee, Ralph M., Capt., St Lukes Hosp., New York.
Griffin, Ernest P. Jr., Major, Grasslands Hospital, Valhalla.
Griffin, William R., Capt., 150 Moffat St., Brooklyn.
Grilihas, Morris, Capt., 2136 71 St., Brooklyn.
Grosof, William S., Capt., 542 Pennsylvania Ave., Brooklyn
Guardino, Louis J., Capt., 103-19 Van Wyck Blvd., Jamaica.
Halberstam, Charles A., Major, 1749 Grand Concourse, Bronx.
Hellman, Jack M., Capt., 803 State St., Watertown.
Henschel, Mervin A., Capt., % Miss Rosalyn Katzen, 130 E. 39th St., New York.
Herkus, David T., Capt., 25-95 41st St., Long Island.

PHYSICIANS SEPARATED FROM SERVICE

New York—Continued

Hofmann, Herman G., Capt., 15 Lawn Ave., New Rochelle.
Hott, Louis R., Major, 2901 Ocean Parkway, Brooklyn.
Huntington, Charles G., Capt., 115 Battle Ave., White Plains.
Hurtes, Harold C., Capt., 714 Howard Ave., Brooklyn.
Hurwitz, Paul, Capt., 2710 Morris Ave., Bronx.
Hyman, Aaron, Capt., 2000 McGraw Ave., Bronx.
Ingalls, Stanley S., Capt., 362 S. Fourth St., Fulton.
Ittner, William F., Capt., 2 Miller Ave., Brooklyn.
Iuppa, Nicholas V., Capt., 2725 Dewey Ave., Rochester.
Ivins, John C., Lt. Col., Bellevue Hosp., New York.
Jackson, Charles G., Capt., 1470 Midland Ave., Bronxville.
Jacobson, Milton B., Capt., 34-17 30th St., Long Island City.
Jacoby, Jacob, Capt., 1925 Quentin Road, Brooklyn.
Kahn, Bernard S., Major, 190 Riverside Drive, New York.
Kahn, Ephraim, Capt., 455 Jackson Ave., Bronx.
Kaiser, Robert A., Capt., 64 Broadway, Buffalo.
Kaplan, Eugene, 1st Lt., 115-30 Park Lane, Kew Gardens.
Karp, Frank L., Capt., President Hotel, Long Beach, L. I.
Kasich, Milosh, Lt. Col., 440 W. 34th St., New York.
Kerr, Robert H., Major, 84 N. Main St., Cortland.
Kinbaum, Alexander L., Capt., 117 Wecker Ave., Buffalo.
Kingston, David T., Capt., Moira.
Kiss, Stephen, Major, 7820 95th Ave., Woodhaven.
Klaer, Harvey, Jr., Capt., 289 Front St., Omego.
Klein, Sam J., Capt., 1692 Union St., Brooklyn.
Kline, Ernest H., Lt. Col., 63 North Broadway, Nyack.
Kopetzky, Samuel J., Col., 71 E. 80th St., New York.
Kove, Simon, Major, 272 E. 45th St., Brooklyn.
Kraus, Daniel M., Capt., 2685 University Ave., New York.
Krebs, Irving B., Capt., 14 Third St., Great Neck.
Krieger, Jerome L., Capt., 683 41st St., Brooklyn.
Krimsky, Emanuel, Major, 745 Eastern Pkwy., Brooklyn.
Kurz, E. R. H., Major, 88-48 Union Turnpike, Glendale, L. I.
Kwak, Albin V., Capt., 485 Terrace Blvd., Depew.
Laporte, George L. Jr., Lt. Col., 315 E. 88th St., New York.
Latcher, John W., Major, 44 Center St., Oneonta.
Lazar, Alfred E., Capt., 287 E. 167th St, New York
Lechner, Sidney, Capt., 1662 Townsend Ave., Bronx.
Lefkowitz, Michael P., Capt., 1275 E. 24th St., Brooklyn.
Leigh, O. C., Jr., Major, % Dept. Phys., 630 W. 168th St. N. Y.
Lenobel, Milton I., Capt., 614 Montgomery St., Brooklyn.
Levenstein, Louis S. Major, 150 E. 182d St., Bronx.
Lever, Shelby N., Major, 774 Hancock St., Brooklyn.
Little, David L., Capt., 295 Glen St., Glens Falls.
Loewinthan, Lawrence, Capt., 145 Seaman Ave., New York.
Lombardo, Thomas A., Capt., 792 West Ave., Buffalo.
McGuinness, Edward J. Jr., Capt., 118 Sterling Place, Brooklyn.
McKelvey, Augustus J., Lt. Col., 12 N. Drive St., Malba, L. I.
Maggiore, Michael J., Capt., 104 W. Valley St., Endicott.
Maguire, William C., 1st Lt., 133 Delaware Ave., Albany.
Mandel, Howard St., 1st Lt., BX 163, Mahopac.
Maranov, Solomon, Capt., 1450 51st St., Brooklyn.
Marck, Abraham 1st Lt., 623 W. 136th St., New York.
Marcus, Julius, 1st Lt., 246 W. End Ave., New York.
Marks, David N., Major, 21 W. 86 St., New York.
Marks, Irving E., Capt., 20 W. 84th St., New York.
Martin, Herbert, Capt., 2602 Avenue T, Brooklyn.
Martinson, Edgar O., Capt., 632 Third St., Brooklyn.
Mascali, Angelo A., Capt., Harlem Valley Sta. Hos., Wingdale.
Maurer, Murray L., Lt. Col., 209-27 112 Rd. St., St. Albans.
Meinrath, Hans, Capt., 75-40 Austin St., Forest Hills.
Mendelsberg, Simon B., Capt., 1755 E. 13th St., Brooklyn.
Merriam, George R., Capt., 92 Haven Ave., New York.
Merrim, Bentley D., Capt., 667 E. 34th St., Brooklyn.
Meyers, Hubbard K., Major, 685 Parkside Ave., Buffalo.
Michaels, Leo, Capt., 1326 Grand Concourse, Bronx.
Milazzo, Richard T., Capt., 786 Plymouth Ave., S. Rochester.
Miller, Bertram W., Capt., 2701 Grand Concourse, Bronx.
Milne, Robert E. A., Major, 23 Wolcott St., Leroy.
Mintzer, Alex, Capt., 287 Sullivan Pl., Brooklyn.
Mistretta, Ignatius E., Capt., 47 Hempstead Ave., Rockville Centre.
Montgomery, Warren R., Jr., Capt., 171 Park St., Buffalo.
Moore, Walter Van O., Col. 1 Nevins St., Brooklyn.
Morchan, Samuel, Capt., 41 Main St., Angelica.
Morgenstern, D. M., Capt., 105-56 V. Wyck Blvd., Richm'd Hill.
Morris, Philip, Capt., 218 E. 94th St., Brooklyn.
Mosher, John F., Lt. Col., Civill Ave., Coeymans.
Murphy, John R., Capt., 75 Main St., Saranac Lake.
Murray, Wm. J., Major, Binghamton State Hosp., Binghamton.
Nelson, Lloyd J., Capt., Creedmoor State Hospital, Queens Village.
Newman, Allen P., Capt., 218 E. 165th St., New York.
Noonan, Francis M., Capt., 136 Simmons Ave., Cohoes.

New York—Continued

Noonan, Thomas R., Major, 10 Terrace Park, Rochester.
O'Brien, John J., Major, 210 Robinson St., Binghamton.
O'Connor, John D., Major, 724 Ridge Rd., Lackawanna.
Odenwald, Robert P., Capt., 53 Park Pl., Suffern.
Olson, Albert W., Major, 419 Clinton Ave., Brooklyn.
Olson, Robert A., Major, East Main St., Brocton.
Orans, Alfred A., Capt., 100 Winthrop St., Brooklyn.
Palank, Edward A., 1st Lt., 225 Lenox Ave., Hempstead.
Paley, Samuel M., Major, 154 W. 70th St., New York.
Pappalardi, Felix A., Capt., 276 E. 199th St., Bronx.
Patane, Joseph M., Major, 1371 Hancock St., Brooklyn.
Payson, Benjamin A., Capt., 1428 Harrod Ave., Bronx.
Pearlman, A. W., Capt., Hotel Taft, 769 7th Ave., New York.
Penner, Abraham, Major, 65 E. 96th St., New York.
Pennock, John W., Lt. Col., 215 Scarboro Drive, Solvay.
Perkul, Roman R., Capt., 250 W. 94th St., New York.
Perry, Thomas L., Jr., Capt., 310 E. 55th St., New York.
Pessar, Theodore, Capt., 3235 Grand Concourse, Bronx.
Peters, Alban G., Capt., 650 Ocean Avenue, Brooklyn.
Posnock, Samuel M., Capt., 128 Babylon Turnpike, Roosevelt.
Preefer, Raymond R., Major, 58 Elton St., Brooklyn.
Press, Harold A., Capt., 68-37 108th St., Forest Hills.
Randall, George B., Major, 10 Oxford Road, Albany.
Redston, Robert D., 1st Lt., 617 W. 168th St., New York.
Riley, Edward C., Capt., 52 Sylvan Ave., Tuckahoe.
Riley, Warren S., Major, 209 William St., Watertown.
Ripps, Isador, Capt., 230 E. 167th St., Bronx.
Robinson, Irving W., Capt., 63 S. Lake Drive, Lakewood.
Roper, Leon F., Capt., Main St., Scio.
Rosenberg, Abraham, Capt., 3351 Seymour Ave., Bronx.
Rosenberg, Beryl D., Capt., 875 Park Place, Brooklyn.
Rulney, Max, Lt. Col., 638 W. 160th St., New York.
Runsdorf, Harold N., Major, 510 Elmwood Ave., Brooklyn.
Samuel Jerome, Capt., 65-22 Myrtle Ave., Glendale.
Samuels, Lester, Major, 104-26 Van Wyck Blvd., Jamaica.
Schepeler, Theodore VanA., Capt., 2816 McKoon Ave., Niagara Falls.
Schiller, Israel A., Major, 699 Ocean Ave., Brooklyn.
Schwartz, Samuel, Major, 2018 Avenue J. Brooklyn.
Schwartz, Sidney A., Capt., 740 Empire Blvd., Brooklyn.
Schweitzer, E. Capt., 1143 Beach Channel Dr., Far Rockaway.
Shaffer, Stanley N., Capt., 66-11 99th St., Forest Hills.
Shair, Hilliard M., 1st Lt., 1415 Avenue N, Brooklyn.
Shapiro, Joseph, 1st Lt., 420 E. 15th St., New York.
Shapiro, Lester E., Capt., 1625 51st St., Brooklyn.
Shapiro, Sidney J., Capt., 2525 Aqueduct Ave., Bronx.
Silber, Maurycy, Capt., 1716 Avenue T, Brooklyn.
Silson, John E., Capt., 234 E. 96th St., New York.
Silverman, F. N., Capt., Babies Hosp., 167th-Brdwy, N. York.
Singer, Solomon B., Capt., 180 E. 163d St., Bronx.
Slattery, Louis R., Lt. Col., 123 E. 61st St., New York.
Sonneborn, Walter M., Capt., 234 Martine Ave., White Plains.
Soscia, Anthony M., Capt., 705 E. 187th St., Bronx.
Spector, Louis H., Capt., 1139 St. Paul St., Rochester.
Stanton, Edward F., Capt., 17 E. 96 St., New York.
Stark, Charles W., Major, 50-10 195 St., Flushing.
Stark, William, Capt., 177-20 Leslie Road, Springfield Gardens.
Starr, Eli, Capt., 98 Heyward St., Brooklyn.
Stauffer, John H., Capt., 8 Chapel St., Canton.
Stein, Samuel J., Capt., 530 E. 139 St., New York.
Stephenson, Charles R., Lt. Col., 1903 E. Main St., Endicott.
Stern, Arthur, Capt., 755 W. End Ave., New York.
Stoloff, Emile G., Major, 1185 Park Ave., New York.
Stoner, William H., Lt. Col., 381 Hawthorne Terr., Mt. Vernon.
Strusinski, Nicholas [illegible]., Major, 41-19 76th St., Jackson Heights.
Sunderland, Douglas A., Major, 40 Monroe St., New York.
Tegtmeyer, Charles E., Major, 9 Madison St., Hamilton.
Terr, Isaac, Capt., 708 Central Ave., Woodmere.
Thompson, Frank D., Capt., 250 Ft. Washington Ave., New York.
Thompson, Maurice B., Capt., 5 Highland Ave., Great Neck.
Toms, Roland E., Lt Col., Vet. Adm., Northport.
Tontar, Silvio, Capt., 1 Grace Church St., Port Chester.
Torrance, Adam M., Capt., Harpursville.
Tortora, Eugene J., Capt., 80-24 Broadway, Elmhurst.
Urbont, Alex. R., Capt., 783 Beck St., New York.
Van Der Linde, John M., Capt., 101 Lafayette Ave., Brooklyn.
Van Ess, Jerome R., Capt., 152 W. 58th St., New York.
Wayne, George J., Capt., 774 Saratoga Ave., Brooklyn.
Weadon, Preston S., Capt., 18 Euston Rd., Garden City.
Webster, Bruce P., Col., 525 E. 68th St., New York.
Wise, Robert A., Lt. Col., 119 E. 91st St., New York.
Wood, Frank, Capt., 73 Broad St., Lyons.

PHYSICIANS SEPARATED FROM SERVICE

North Carolina

Biggs, John I., Major, 11th & Pine St., Lumberton.
Erickson, Cyrus C., Lt. Col., Duke Hospital, Durham.
Fisher, Ernest W., Capt., Bryson City.
Flynn, James T. Jr., Capt., Memorial Hospital, Charlotte.
Fuller, Henry F., Capt., Kinston.
Greene, James V., Capt., Box 447, 435 Hay St., Fayetteville.
Hairfield, Beverly D., 1st Lt., Morganton.
Lapsley, Alberti F., Capt., Badin.
Long, Thomas W., 1st Lt., Newton.
Lore, Ralph E., Capt., 211 Norwood St., Lenoir.
McDevitt, Charles H., Jr., Major, Statesville.
McMillan, Robert M., Major, Box 117, Candor.
Murphy, James D., Lt Col., Vet. Adm. Facility, Oteen.
Patton, William H. Jr., 1st Lt., 109 Terrace Pl., Morganton.
Peters, Don P., Jr., 1st Lt., 2011 Fairview Road, Raleigh.
Putney, Robert H., Capt., Elm City.
Robinson, James L., Major, 155 S. York St., Gastonia.
Ruark, Robert J., Major, 1610 Jarvis St., Raleigh.
Ruffin, Jennings B., Capt., Ahoskie.
Sullivan, Joseph T., Lt. Col., 54 Westover Dr., Asheville.
Taylor, Andrew D., Major, 519 Hermitage Ct., Charlotte.
Taylor, Andrew DuV., 1st Lt., 519 Hermitage Court, Charlotte.
Williams, William H., Jr., 1st Lt., 1115 South Blvd., Charlotte.
Wyatt, Arthur T., Lt. Col., Lillington.

North Dakota

Edwards, Thomas F., Capt., 406 Mandan St., Bismarck.
Dodds, George A., Lt. Col., 523½ 5th Ave., Valley City.
Fortney, Arthur C., Major, 807 Broadway, Fargo.
Gilsdorf, Amos R., Major, Dickinson Clinic, Dickinson.
Goldsberry, James E., Capt., % Mrs. Carl Moen, Sentinel Butte.
Hoeger, Agnes M., Capt., 411 14th St., South Fargo.
Tongen, Lyle A., Major, Walhalla.

Ohio

Astler, DeWitt G., Capt., 1202 Ryland Ave., Cincinnati.
Beach, Wilber E., Col., Middle Point.
Beck, Harry W., Major, 257 Linwood Ave., N.W., Canton.
Bershon, Albert L., Lt. Col., 3336 Brantford Road, Toledo.
Blondis, Robert R., Capt., 19606 Winslow Rd., Shaker Heights.
Bone, James R., 1st Lt., 1363 Hershel Ave., Cincinnati.
Brubaker, Wilbur K., Capt., 335 Stanford Ave., Elyria.
Burrows, John W., Capt., Erie Beach Rd., Lakeside.
Conn, Harry G., Major, 2818 Cherry St., Toledo.
Coffin, Theodore A., Capt., 177 Liberty St., Painesville.
Cook, Malcolm O., Major, 520 Oakwood Dr., Hamilton.
Denny, William L., Lt. Col., 1963 Brenton Ave., Cambridge.
Dickson, Ross D., Capt., 405 E. Yeasting St., Gibsonburg.
Diggs, Arthur O., Major, 270 E. 2nd St., Mansfield.
Dimmick, E. L. Jr., Major, 6040 Ridge Rd., Parma, Cleveland.
Donath, Stephen, Capt., 4925 Douglas Road, Toledo.
Futrelle, Walter E., Lt. Col., Vet. Adm. Facility, Chillicothe.
Gerson, Samuel K., Capt., 211 Park St., Lancaster.
Hall, Augustus A., Lt. Col., 2483 E. Main St., Columbus.
Harvey, Arch D., Major, 106 High St., Lebanon.
John, Henry J., Lt. Col., 2091 Lamberton Road, Cleveland.
Karrer, Herman E., Capt., Plain City.
Katz, Louis B., Capt., 1528 Brynmaur Dr., Dayton.
Khuon, Robert E., Capt., 319 Terrace Ave., Cincinnati.
Kirk, Thomas M., Col., 632 Belmont Park N., Dayton.
McGowan, W. L., Lt. Col., 73 Erkenbrecher Ave., Cincinnati.
McGuire, Johnson, Col., 2538 Grandin Road., Cincinnati.
McGuire, Philip J., Major, 691 E. Ford Ave., Barberton.
Martin, Marion R., Major, Nearing Circle, Geneva.
Mendelsohn, Harvey J., Capt., 1411 E. 11th St., Cleveland.
Mignerey, Harry F., Capt., RFD #1, Stryker.
Mihalek, John C., 1st Lt., 2300 Roanoke Ave., Cleveland.
Mikesell, Hobart L., Lt. Col., PO Box 266, West Liberty.
Minder, Delbert A., Major, 750 N. High St., Columbus.
Modic, Joseph L., Capt., 1033 E. 62d St., Cleveland.
Molle, William E., Capt., 2460 Putnam St., Toledo.
Moorhead, Orman C. Jr., Capt., 9 S. High St., Athens.
Murphy, Howard J., Capt., 12 Birckhead Pl., Toledo.
Mutschmann, Paul N., Major, 1180 Maywood Ave., Warren.
Nichol, A. D., Lt. Col., 22200 Calverton Rd., Shaker Heights.
Northrup, Deane H., Capt., Goebel Pl., Marietta.
Pospisil, Rudolph J., Capt., R.D. 1, Springfield.
Roof, Clyde S., Lt. Col., 3043 Daytona Ave., Cincinnati.
Schiro, Harold S., Major, 571 Rose Hill Ave., Cincinnati.
Shafer, Charles L., Major, 771 Woodhill Road, Mansfield.
Shapiro, Sigmund J., Capt., 550 Butler Road, Warren.
Skaryd, William S., 1st Lt., 3706 E. 131 St., Cleveland.
Speck, Myron E., Capt., 14113 Beckett Rd., Cleveland.
Stas, Carl A., Capt., 4615 Broadview Rd., Cleveland.

Ohio—Continued

Stempien, S. J., Major, 3095 Yorkshire Rd., Cleveland Heights.
Svoboda, Joseph E., Capt., 4467 E. Blvd., Cleveland.
Teufel, William J., Capt., 21458 Cromwell Ave., Rocky River.
Thomas, Densmore, Capt., 421 Robbins Ave., Niles.
Thomas, Robert L., Major, 1126 Neil Ave., Columbus.
Voegele, Albert H., Capt., 541 W. Park Ave., Mansfield.
Vogel, Louis A., Lt. Col., Glandorf.
Widrich, Jack, Capt., 170 N. Main, Cadiz.
Wolf, Carl J., Major, 1712 Hayes Ave., Fremont.

Oregon

Bennett, Woodson, Major, 2127 N.W. Irving, Portland.
Berger, Samuel, Capt., Warm Springs Hospital, Warm Springs.
Bradley, James A., Lt. Col., 1162 Williamette St., Eugene.
Cohen, William, Capt., 2015 N.W. Flanders, Portland.
Eddy, Lowell L., Capt., 222 Robb St., Dallas.
Gould, Robert J., Capt., 3211 S.W. 10th Ave., Portland.
Halboth, Oscar J., Capt., 45 Barnesburg, Medford.
Hamilton, Norval E., Capt., 3507 S.W. 11th St., Portland.
McDonald, Daniel C., Capt., 2260 N.W. Hoyt St., Portland.
Nachtman, Howard F., Capt., 2729 N.E. Russell St., Portland.
Newman, Jack V., Capt., Multnomah County Hosp., Portland.
Page, Wayne J., Capt., Dallas.
Reid, John W., 1st Lt., Mill City.
Ross, Weldon T., Capt., Fifth & Evans Sts., McMinnville.
Selling, Philip, Capt., 2228 S.W. 21st Ave., Portland.
Suckow, George R., Major, 2204 N.E. 26th Ave., Portland.
Ten Eyck, Thomas G., Major, Doernbecker Hospital, Portland.
Woods, B. O., Lt. Col., 5260 S.W. Humphrey Blvd., Portland.

Pennsylvania

Bair, George E., Major, 811 West St., Homestead.
Baker, Howard W., Lt. Col., 3401 N. Broad St., Philadelphia.
Barnes, Russell H., Major, 906 Washington Ave., Tyrone.
Beck, Morton S., Capt., 6216 Christian St., Philadelphia.
Bland, George W., Major, 31 Simpson Road, Ardmore.
Boland, Matthew J., Major, 332 N. 5th St., Reading.
Bozic, William F., Major, 2932 Arlington Ave., Pittsburgh.
Brody, William, Major, 5247 Chestnut St., Philadelphia.
Bronk, Henry N., Lt. Col., 620 Clay Ave., Jeannette.
Brown, George H., Major, 3301 Lancaster Ave., Philadelphia.
Brown, Thomas P., Major, 251 Burmont Rd., Drexel Hill.
Cantafio, Ralph, 1st Lt., 2215 W. Tioga St., Philadelphia.
Cohen, Milton H., Major, 206 E. Market St., York.
Corff, Meyer, Lt. Col., 4637 York Rd., Philadelphia.
Corwin, James D., Capt., 6 S. Main St., Washington.
Couch, Francis B., Capt., 365 Moyhend St., Springdale.
Cronlund, R. W., Capt., 213 Avon Road Merion, Narberth.
Dedick, Andrew P. Jr., 1st Lt., 131 N. Willow St., Mt. Carmel.
Degling, Erwin G., 1st Lt., 433 Hillcrest Ave., State College.
Delehanty, John T., Capt., Lattimer.
Doering, Andrew A., Capt., 2d St. Pike, Huntington Valley.
Donley, Donald, Major, 303 Prindle St., Sharon.
Elsom, Kendall A., Lt Col., Old Gulph Road, Narberth.
Erhard, Elmo E., Major, 13 State St., Curwensville.
Fetterman, Louis G., Major, Campbelltown.
Freedman, Abraham, Major, 1629 68th Ave., Philadelphia.
Frick, Willis G., Lt. Col., 1117 Willow St., Norristown.
Fry, Kenneth E., Lt. Col., 1530 Locust St., Philadelphia.
Furst, William, Major, Philadelphia Gen. Hosp., Philadelphia.
Gardner, William A., Major, Vet. Adm. Facility, Coatesville.
George, James M., Capt., 705 College Ave., Pittsburgh.
Goudsmit, Arnoldus, Major, 40 Roberts Ave., Glenside.
Greene, Richard B., Capt., 412 N. 12th St., Reading.
Heller, James D., Capt., 150 S. 2d St., Copley.
Herron, Frank Thompson, Capt., 3708 Fifth Ave., Pittsburgh.
Hodge, Ian G., Major, 621 Grandview Blvd., Lancaster.
Hoon, James R., Major, 701 W. Main St., Monongahela.
Horner, Harry O., Capt., 425 Brandon, Greensburg.
Hume, Evan B., Major, 1008 Clinton St., Philadelphia.
Jackson, Daniel, Capt., 1111 Sheffield Ave., Aliquippa.
Jacobson, Sidney, Capt., 4217 Viola St., Philadelphia.
Joyce, William T., Major, 2730 Colliery Ave., Minooka.
Kapo, Peter J., Lt. Col., 211 W. Center St., Mahanoy City.
Keiser, Edwin L., Capt., 4602 Princeton Ave., Philadelphia.
Koenig, Frederick W., Major, RD 9, Box 189, Brookside Farms.
Landis, Floyd M., Capt., Lancaster General Hospital, Lancaster.
Leopold, H. C., Capt., 28A, Chew & Duval St., Philadelphia.
Levin, Raphael A., Capt., 2101 Catherine St., Philadelphia.
Lipshutz, Jack, Capt., 6112 Torresdale Ave., Philadelphia.
Luxenberg, Lester, Lt. Col., 18 N. 2d St., Philipsburg.
Lynch, Ralph, Major, Hunt Rd., Fox Chapel, Pittsburgh.
McAdams, Andrew J., Major, 4700 Center Ave., Pittsburgh.
McAloose, J. T., Major, 24 E. Blaine St., Sch'lkill Co., McAdoo.

PHYSICIANS SEPARATED FROM SERVICE

Pennsylvania—Continued

McGarvey, Myron L., Capt., 603 Washington Ave., Bridgeville.
McGill, John F., Major, 6904 McPherson Blvd., Pittsburgh.
McGuinness, A. C., Lt. Col., 8614 Montg. Ave., Chestnut Hill.
McKee, C. E., Capt., Br'nsville Rd., B. 89A, RD 6, Pittsburgh.
McKee, C. W., Major, RFD 6, Brownsville Rd., Pittsburgh.
Marcks, Kerwin M., Major, 222 Main St., Emmaus.
Martin, John B., Capt., Fredericktown.
Martin, Lee B., Major, 8 Market St., Burgettstown.
Martyak, Gabriel S., Capt., 553 Arthur St., Hazelton.
Maxwell, James D., Capt., 900 Jefferson Ave., Washington.
Megahan, Alvin R., Capt., 741 Spring St., Latrobe.
Meiser, Edgar W., Major, 554 N. Duke St., Lancaster.
Mermelstein, Milton, Capt., 306 Mulberry St., McKeesport.
Messey, Joseph W., Capt., 3043 W. Berks St., Philadelphia.
Miller, Otto A., Capt., 1227 Center St., Ashland.
Moran, John F. Jr., Major, 3723 Bonsall Ave., Drexel Hill.
Motta, Peter G., Capt., 6 E. Main St., Carnegie.
Moyer, Donald G., Major, 1153 Penn Ave., Wyomissing.
Munro, Ross F., Capt., Elverson.
Muschlitz, Robert R., Capt., 308 First St., Slatington.
Nadler, Manuel P., Capt., 536 Maplewood Ave., Ambridge.
Nicholson, Frank W., Capt., Box 22, Apollo.
Pettit, Horace, Major, 202 St. Georges' Road, Ardmore.
Pilgram, Robert H., Major, 653 State St., Lancaster.
Piper, William S., Capt., 110 North Second St., Clearfield.
Reiss, Emil E., Jr., Capt., 412 Carl St., Pittsburgh.
Rhoads, Samuel C., Capt., 738 E. Phil-Ellena St., Philadelphia.
Riester, Herman W., Capt., 226 W. Eighth St, Erie.
Ronan, Joseph A., Capt., Altoona.
Roos, Alfred T., Major, 153 W. 8th St., Erie.
Sapira, Harry A., Major, 400 Market St., Elizabeth.
Segal, Asher, Capt., 3319 Ridge Ave., Philadelphia.
Silverstine, Leslie B., Capt., 53 School St., Bradford.
Sirken, Joseph G., Major, 2030 Pine St., Philadelphia.
Sklaroff, David M., Capt., 4268 Parkside Avenue, Philadelphia.
Soffel, Joseph A., Major, 6820 Penham Pl., Pittsburgh.
Sones, Maurice, Major, 1418 W. Conlyn St., Philadelphia.
Stahle, Dale C., Capt., 115 North St., Grayco Apt., Harrisburg.
Steigman, Alex J., Major, Philadelphia.
Stephens, Josephine M., Capt., 1100 W. Main St., Monongahela.
Stock, Aaron H., Capt., 5449 Covode St., Pittsburgh.
Strickland, Wilbur H., Major, 1408 N. 21st St., Philadelphia.
Tompsett, Ralph R., Major, 15 Main St., Tidioute.
Torin, Jack E., Major, Russellton.
Van Buskirk, Kryder E., Major, 64 N. Hanover St., Pottstown.
Verrei, Scott P., Major, 956 Pratt St., Philadelphia.
Weinstein, Lee, Capt., 1510 State St., Harrisburg.
Wendkos, Martin H., Major, 4015 Baltimore Ave., Philadelphia.
Winey, Wilfred H., Capt., R.D. 5, Berkley Hill, Johnstown.

South Dakota

Andre, Hugo Carl., Capt., Vermillion.
McGonigle. James P., Major, 629½ Main St., Rapid City.
Nolan, Bernard P., Capt., Pine Ridge.
Ogborn, Robert J., Major, 1410 S. Center Ave., Sioux Falls.
Ogg, Francis W., Lt. Col., Veterans Admin., Hot Springs.

Texas

Barker, Robert C., Capt., 24 Valley Ridge Road, Ft. Worth.
Bergfeld, Arthur W. C., Capt., 173 S. Gilbert, New Braunfels.
Brau, John G., Major, 1410 Medical Arts Bldg., Dallas.
Brener, Lazard S., Capt., 3415 Tangley St., Houston.
Bruce, Paul C., Lt. Col., Vet. Admin. Hospital, Legion.
Butera, James M., Capt., 1903 W. Walker St., Houston.
Buzbee, Herman R., Capt., Parkland Hospital, Dallas.
Cantrell, William H., Capt., 114½ N. Main St., Van Alstyne.
Childers, M. A. Jr., Lt. Col., Alamo Nat. Bk. Bldg., San Antonio.
Clark, Doyce M., Major, Lubbock.
Dashiell, Albert M., Lt. Col., 2202 Bridle Path, Austin.
Diamond, Max M., Major, 2112 Avenue I, Galveston.
Dozier, Fred S., Major, 4225 Bryn Mawr St., Dallas.
Eschenbrenner, John W. Jr., Major, 3600 Country Club Circle, Ft. Worth.
Fisher, Herbert C., Lt. Col., 310 Castano Ave., San Antonio.
Hander, William W., Capt., Jefferson Davis Hosp., Houston.
Hart, Maynard S., Major, 3140 Aurora, El Paso.
Heymann, Hans E., Capt., 720 S. Carancahua, Corpus Christi.
Hill, Robert M., Capt., Route 2, Box 162, Kingsville.
Hoeflich, Werner F. A., Capt., 1603 McGowen Ave., Houston.
Hughes, Sidney W., Major, 1709 Avenue C, Brownwood.
Jones, Ernest W., Major, Kenedy.
Jones, John W., Major, 1203 Wood St., Texarkana.
Katribe, Paul, Capt., 1845 W. Main, Houston.

Texas—Continued

Klecka, Theodore A., Major, 609 E. Broadway St., Cuero.
Lemee, Raymond A., Major, Headlee Hosp., Odessa.
Letteer, Clarence R., Jr., Major, 224 E. Rosewood, San Antonio.
McCollum, Floyd L., Lt. Col., Box 175, Mason.
McDanald, Eugene C., Jr., Capt., 2675 McFaddin, Beaumont.
McGee, Aubrey S., Lt. Col., Handley.
McRee, Walter E., Major, Port Arthur.
McVay, Melvin J., Capt., Vet Adm. Center, Waco.
Magruder, Charles L., Lt. Col., Vet. Adm., Dallas.
Manske, Gerhard R., Lt. Col., 219-21 Sixth St., Texas City.
Mayfield, Jack H., Capt., 4419 N. Roseneath Dr., Houston.
Miller, Frank P., Major, 324 Sunset Terrace, Amarillo.
Miller, Walter S. Jr., Major, 1417 Victoria St., Laredo.
Mock, Ernest L., Major, 734 Rockwood St., Dallas.
Moers, Arthur E., Capt., 3204 Shenandoah, Houston.
Monroe, Myrick L., Capt., Jasper.
Pfitsch, Alfred, Jr., Capt., 609 W. Summit Ave., San Antonio.
Phillips, Claude M., Major, 423 Rigsby Ave., San Antonio.
Powell, Sam M. Jr., Major, 2021 Austin Avenue, Waco.
P'Pool, William F., Capt., 604 James St., Sweetwater.
Reed, Emil P., Lt. Col., 4316 Rawlins St., Dallas.
Rice, Lee, Lt. Col., 343 W. Gramercy St., San Antonio.
Robins, Bill, Capt., 1002 Crocker St., Houston.
Russell, Woolworth A., 1st Lt., 1105 Van Buren St., Amarillo.
Saegert, August H., Capt., 124 E. Edgewood Place, San Antonio.
Shannon, Manning B., Jr., Major, 6727 Inwood Road, Dallas.
Shannon, Shelby E., Capt., Karnes City.
Stevenson, Edward N., Capt., Davidson Clinic Hosp., Seagraves.
Trippet, Horace H. Major, 3723 Chateau Ave., Waco.
Walker, Allen E., Capt., 209 Brown St., Waxahachie.
Wilson, Iva G., Capt., 419 American Nat. Bank, Beaumont.

Vermont

Buttles, Roy V., Lt. Col., 457 S. Willard St., Burlington.
Farmer, Howard J., Major, 20 Main St., St. Johnsbury.
McIntyre, George A., Capt., 141 Main St., Montpelier.
Mayo, Dana B., Capt., East Randolph.
Sullivan, Harold F., Major, 30 Church St., Burlington.
Whitney, Charles F., Jr., Capt., 19 Kingsland Terr., Burlington.

Wisconsin

DeSalvo, Michael F., Major, Niagara.
Fein, Bernard T., Capt., 4511 W. Lisbon Ave., Milwaukee.
French, George A., Capt., 826 N. 14th St., Milwaukee.
Fulton, James W., Capt., 6610 W. Revere Place, West Allis.
Heiden, Harry H., Lt. Col., 1005 N. 8th St., Sheboygan.
Ihrke, Irvin A., Capt., 1118 Algoma Blvd., Oshkosh.
Irwin, Wallace G., Capt., 210 Lodi St., Lodi.
Kaufman, Lawrence W., Capt., 4518 S. Howell St., Milwaukee.
Kingsbury, Charles H., Major, Goodman.
Kleis, William J., Capt., 2461 N. 88th St., Wauwatosa.
Kretlow, Fred A., Capt., 1930 N. Prospect Ave., Milwaukee.
Kuhlmann, R. F., Capt., 2752 N. Bartlett Ave., Milwaukee.
Martens, Earl W., Major, 3384 S. 37th St., Milwaukee.
Meyer, Jerome H., Capt., St. Joseph's Hospital, Milwaukee.
Nefches, Michael S. N., Major, 2047 S. 29th St., Milwaukee.
Peterson. John R., Major., 2200 S. Layton Blvd., Milwaukee.
Schroeder, Charles M., Major, 1413 College Ave., Racine.
Trent, Letcher E., Lt. Col., Vet. Adm., Mendota.
Uhley, Milton H., Capt., 727 N. 21st St., Milwaukee.
Usow, John M., Major, 2208 W. Locust St., Milwaukee.
Weber, Joseph E., Capt., 2014 University Ave., Madison.
Wyman, George P., Major, Vet. Hospital, Mendota.

Wyoming

Koford, Glenn W., Capt., 1812 Pebrican Ave., Cheyenne.
Sampson, James W., Capt., 738 S. Thurmond St., Sheridan.

Canal Zone

Pawol, Sylvester E., Lt. Col., Box 135, Ft. Amador.

Hawaii

Faus, Robert B., Col., 37 Young Hotel Bldg., Honolulu.
Pinkerton, Ogden D., Major, 2552 Manoa Road, Honolulu.

Puerto Rico

Bou-Lopez, Jose, Capt., Vega Alta.
Colon, Jorge A., Capt., Munoz Rivera St., No. 22, Rio Piedras.
Gil, Rafael A., Capt., P.O. Box 794, Aibonito.
Julia, Carlos M., Major, 13 Bernabe Pl., Hato-Rey.
Perea, Luis R., Capt., Avenida Acasias No. 3, Mayaguez.
Rechany, Joseph E., Major, 73 Brau St., San Juan.
Velez, Francisco M., Major, Noya y Hernandez St., Humacao.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

Feb. 25, 1946.

Contract Hospitalization for Veterans Criticized by Legion

The Veterans Administration's contract hospitalization program is under fire from the American Legion. Commander John Stelle, who is reported to be coming to Washington to "bury the hatchet" in his squabble with Veterans Administrator Omar Bradley, has called for facts and figures from every state on contract hospitalization. Veterans claim it was not satisfactory after the last war, and Mr. Stelle says it will "be pretty tough on these new veterans." The veterans agency, in what is planned as a nationwide project, has already arranged with four state hospital associations to contract with private institutions to furnish beds for veterans with service connected ailments. The Legion chief plans to present information to General Bradley and the veterans' medical director, Major Gen. Paul R. Hawley. General Bradley says his agency has already asked for seventeen surplus army and navy hospitals, bub the Legion feels that more should be used for veterans. General Hawley contends that only where there are plenty of good doctors available will hospitals be taken over. "It is the worst kind of fraud to offer the veteran a hospital in which it is impossible to give him first class medical care." General Bradley reports a reluctance by employers to hire disabled veterans.

Wallace Starts Controversy in Des Moines Speech

The charge by Commerce Secretary Wallace in his recent Des Moines speech that western pigs are better nourished than Washington, D. C., school children stirred up a lively controversy. Mr. Wallace claimed that he usually saw ill fed, undernourished children on his home to office walks each day. Dr. Thorval L. Hickman, Gallinger Hospital pediatrician, called the secretary's remarks "exaggerated" and pointed out that standards for determining proper nourishment vary. Dr. Roland B. Scott, pediatrics chief at Freedman's Hospital, reported that 95 per cent of the children brought to that hospital suffered from malnutrition.

Women to Get Role in Postwar Army

The War Department will seek early legislation establishing the Army Nurse Corps, the proposed Women's Medical Specialist Corps and the Women's Army Corps in the postwar military establishment, according to Major Gen. Willard S. Paul, assistant chief of staff. He addressed a conference of delegates of leading women's groups at the Pentagon Building. General Paul said that as the bill is now being drawn the Army Nurse Corps will be made a permanent corps in the Regular Army and it will give reserve status on request to nurses who served honorably during World War II. The legislation would also include a Women's Medical Specialist Corps consisting of women in the present Dietitians and Physical Therapists Corps. Reserve status will also be sought for discharged Wacs and would include the wartime corps in the permanent army.

School Lunch Program Bill Approved by House

The House of Representatives has passed by a 275 to 101 vote, and sent to the Senate, the bill authorizing the federal government to spend $50,000,000 on state school lunch programs. Also passed was an amendment by Representative Powell, Democrat of New York, prohibiting funds to states or schools in which students are discriminated against because of race or color.

Capital News in Brief

Brig. Gen. George R. Callender, U. S. Army, assistant commandant of the Medical Department Professional Service Schools, presented awards to civilian employees of the Army Medical Service who were honored for meritorious service.

Temporary relaxation of Washington zoning regulations has been asked to permit doctors unable to get office space to use their living quarters for offices.

Congress has been urged to bypass the controversy between public and private housing on how to clear Washington, D. C., slums and to approve a $20,000,000 Redevelopment Agency in Washington.

Open hearings on legislation to ban experimentation on dogs in the District of Columbia have been set for 10 a. m. Thursday, February 28.

The District of Columbia Medical Society, which took an important part through its delegates in working out the American Medical Association health insurance program, will launch the program here shortly, it is reported.

Group Health, Inc., medical cooperative of government workers, voted at its annual meeting here to extend its medical service "without racial discrimination."

Persons who paid large medical and dental bills in 1945 are advised to make their 1945 income tax returns on the long form 1040 to save money.

Official Notes

TEMPORARY APPROVAL OF RESIDENCIES

Because of the large number of applications for approval of residency training programs submitted by hospitals developing these programs in response to the increased demand for training by returning medical officers, the Council on Medical Education and Hospitals of the American Medical Association has approved a plan for the temporary approval of residencies. This plan was developed in collaboration with the Advisory Board for Medical Specialties through its executive committee. A majority of the American boards in the specialties has already indicated an approval of the proposal. It is anticipated that other boards, if not all of them, will subscribe to the plan. The program is as follows:

1. The Council on Medical Education and Hospitals of the American Medical Association has temporarily delegated to its secretary the authority to grant temporary residency approval on behalf of the Council subject to concurrence by the appropriate American board as described in No. 2.

2. Each participating American board has appointed representatives (usually one individual for each board) to consider new residencies for temporary approval with authority to act on behalf of the board.

3. Temporary approval will be based on information from the hospital concerning the personnel, facilities and educational program of the hospital service involved without immediate inspection. Such approval will be granted only if the representatives of the Council and of the board are reasonably satisfied that the educational program fulfils the standards of both bodies.

4. Subsequently, employing the usual procedures, an inspection of the hospital will be carried out by the Council's staff. On the basis of inspection report, the Council will consider the temporarily approved hospital for transfer to the regularly approved list in the usual manner. The inspection report and the recommendations of the Council will be submitted to the appropriate board, and the board will return its concurrence or disagreement with the Council. The result of this procedure would be either (*a*) transfer of the temporarily approved residency to a fully approved status or (*b*) withdrawal of the temporary approval.

5. In the event of withdrawal of temporary approval and failure to grant regular approval, credit toward board certification will be given to physicians for that part of their training received while the residency was on a temporary approval status. After such withdrawal of approval, residents seeking board certification will be given a reasonable time to obtain another acceptable residency without loss of time credit. This means that no resident would be penalized so far as board credit is concerned for time spent in a temporarily approved residency.

In seeking approval by the Council on Medical Education and Hospitals, those hospitals which organize new residencies should initially make no distinction between regular versus temporary approval. Applications should be transmitted to the Council in the regular manner. In the immediate future most, if not all, applications will be considered at once for temporary approval. The Council's staff will proceed with regular inspections as rapidly as possible so that transfer of acceptable hospital residencies from the temporarily approved to the regular approved list will take place as rapidly as possible if the inspection report seems to warrant such transfer in the opinion of the representatives of the Council and of the American board concerned.

DOCTORS AT HOME BROADCASTS

The American Medical Association in cooperation with the National Broadcasting Company broadcasts each Saturday afternoon at 4 o'clock eastern standard time (3 p. m. central standard time, 2 p. m. mountain standard time, 1 p. m. Pacific standard time) under the title "Doctors at Home." This is the sixth season of broadcasting in dramatized form under the general title "Doctors at Work." The broadcasts present a serial story of the experiences of a fictitious doctor just returned from service as a medical officer of the United States Army.

The next three programs are as follows:

March 2. Surgery Saves Blue Babies; the story of arterial surgery.
March 9. The Tale of a Gland; about toxic goiter.
March 16. Dogs, Cats and Squirrels; the story of rabies.

The programs are summarized by Drs. W. W. Bauer and William W. Bolton of the Bureau of Health Education.

Announcement folders have been prepared for distribution locally. These may be had in quantities of 100 by applying to the Bureau of Health Education. Local distribution can be made effectively by the Woman's Auxiliary groups.

Council on Medical Service and Public Relations

REGIONAL CONFERENCE OF REPRESENTATIVES OF MIDDLE ATLANTIC STATES

At the request of the Council on Medical Service and Public Relations of the American Medical Association a regional conference of the representatives of the Middle Atlantic states, including New York, New Jersey, Delaware, Pennsylvania, District of Columbia, Virginia and Maryland, was held at Philadelphia on Thursday, January 31. More than fifty representatives attended.

The conference took the form of an all day round table discussion highlighted particularly by steps toward the formation of a permanent regional organization. It was stressed that this organization should function in a two way manner in order to bring to this area both the desires and information from the national council and convey more in detail the problems and progress made in the several states included in the conference. The following committee was appointed to effect this organization: Dr. F. F. Borzell, Pennsylvania, chairman; Dr. J. M. Emmett, Virginia; Dr. F. J. Quigley, New Jersey; Dr. H. H. Bauckus, New York, and Dr. L. R. Wharton, Maryland; representatives from the District of Columbia and from the Delaware State Medical Society are to be named later.

The conference discussed in detail plans already in operation covering both prepaid medical care to all groups and the cooperation of the several states in the reorganized Veterans Administration program. The latter subject was presented effectively by Col. J. C. Harding, acting director, outpatient service, Veterans Administration, officially representing General Hawley, medical director. From each state represented a frank, factual report was given on the status of medical care problems in that state.

It was obvious that the greatest need at the present time is more effective participation of the county medical societies. Public relations activities were stressed, and here again the necessity for stimulation of local public relations activities through county medical societies is imperative. Said Dr. Borzell, the chairman, "While this was the first conference in this area, it was quite obvious that, as indicated by the active participation of those present, regional conferences have a place in carrying forward both the defensive fight against federal control of medicine as well as the positive constructive program of meeting obvious medical care needs." Another conference of this region will be held early in May.

Those who took part in the program were Dr. F. F. Borzell, chairman, Council on Medical Service and Public Relations, Medical Society of the State of Pennsylvania; Dr. William L. Estes Jr., president, Medical Society of the State of Pennsylvania; Mr. Jay Ketchum, executive vice president, Michigan Medical Service Association, and chairman of the Advisory Committee on Prepayment Medical Care of the Council on Medical Service and Public Relations; Mr. Thomas A. Hendricks, secretary, Council on Medical Service and Public Relations; Col. J. C. Harding, M. C., acting director, outpatient service; Dr. Norman M. Scott, medical director, Medical Service Administration of New Jersey, and executive assistant, Medical Society of New Jersey; Dr. Walter F. Donaldson, secretary-treasurer of the Medical Society of the State of Pennsylvania; Mr. Roy Jansen, publicity representative, Medical Society of the State of Pennsylvania; Mr. James E. Bryan, executive secretary, New York County Medical Society; Mr. Theodore Wiprud, executive secretary, Medical Society of the District of Columbia, and Dr. Joseph S. Lawrence, director of the Washington Office of the Council on Medical Service and Public Relations.

ATTITUDE OF CHICAGO WOMEN TOWARD MEDICINE

Chicago women are not in favor of socialized medicine, a survey conducted January 28 in the city's Loop area by the Chicago *Tribune* indicated. Of the first fifty women interviewed at the corner of State and Washington streets by *Tribune* writer Norma Lee Browning, only one said that she was willing to relinquish her freedom of choice of a physician or that she wanted free hospitalization and medical care at the expense of an increase in taxes. That one was a native-born German.

The survey was prompted by a doctor's statement that women in general are more doctor conscious than men and should be concerned over what the Wagner-Murray-Dingell proposal for a government medical plan would mean to them and to their families.

Few of the women interviewed, said the *Tribune* reporter, knew anything about the Wagner-Murray-Dingell bill. Most of them admitted that they didn't understand socialized medicine but expressed a fear that in some way it would trespass on sacred territory.

PREPAID MEDICAL CARE NEWS

American Pharmaceutical Association Appoints Committee to Study Medical Care

The Council of the American Pharmaceutical Association and the Executive Committee of the N. A. R. D. at their joint meeting in 1944 suggested the appointment of a joint committee of the two associations to study and supply information on various plans that may be suggested for prepaid medical care, with special reference to the pharmaceutical phases of such plans.

The members of the committee elected Dr. Robert P. Fischelis, secretary of the American Pharmaceutical Association, as chairman. The committee is now in the process of obtaining information from medical societies, pharmaceutical associations and state boards of health on various available plans, preparatory to studying these plans.

Medical Legislation

MEDICAL BILLS IN CONGRESS

Scientific Research

A revised bill, S. 1850, has been introduced proposing to promote the progress of science and the useful arts, to secure the national defense and to advance the national health and welfare. This bill was introduced by Senator Kilgore, West Virginia, for himself and Senator Magnuson, Washington, Senator Johnson, Colorado, Senator Pepper, Florida, Senator Fulbright, Arkansas, Senator Saltonstall, Massachusetts, Senator Thomas, Utah, and Senator Ferguson, Michigan. This legislation would create a National Science Foundation administered by an administrator to be appointed by the President after consultation with the National Science Board to be created by the law.

School Lunch Programs

The House has passed H. R. 3370, to authorize the federal government to contribute $50,000,000 a year to school lunch programs. This federal fund will be matched 50-50 by participating states beginning July 1, but the bill requires that the federal government would spend $1 for each $2 expended by the states in 1948, $1 to $3 in 1949 and 1950, and $1 to $4 thereafter.

Hearings

The Senate Committee on Education and Labor has scheduled hearings on S. 1606, the second 1945 version of the Wagner-Murray-Dingell bill, to begin March 18.

The House Committee on Ways and Means began hearings on social security legislation, February 25.

The House Committee on the District of Columbia has scheduled hearings on the Lemke antivivisection bill, H. R. 491, to begin February 28.

STATE LEGISLATION

California

Bills Passed.—A. 88-X passed the senate February 12. It proposes the creation of a State Advisory Council on Hospital Facilities and would authorize the Department of Public Health to make a survey of existing public and private hospitals and health centers in the state, to evaluate the sufficiency of such hospitals and health centers to supply the necessary physical facilities for furnishing adequate hospital, clinic and similar services to the people of the state, and to make any recommendations concerning additional facilities as may be necessary. S. C. R. 16-X passed the house February 15. It proposes a resolution requesting the state director of finance to appropriate $44,000 for the purpose of carrying out a 1945 law providing for the better protection of the public health by state licensing, inspecting, regulating and supervising of public and private hospitals.

Bills Enacted.—A. 35-X has become chapter 33 of the Laws of 1946. It authorizes the appropriation to the Regents of the University of California of the sum of seven million dollars for the purpose of establishing, equipping and maintaining a medical school and center as a unit in the University of California at Los Angeles. A. 37-X has become chapter 31 of the Laws of 1946. It amends the Business and Professions Code so as to increase the annual tax and registration fee of osteopaths from $5 to $10 for residents and from $2 to $10 for nonresidents. S. J. R. 7-X was filed with the secretary of state, February 11. It requires that the President of the United States and the Veterans Administration be memorialized to enter immediately into contracts with the Army and Navy to take over an adequate number of hospitals in California adequately staffed to furnish hospital facilities for veterans.

Kentucky

Bills Introduced.—H. 347 proposes regulations for the licensing of manufacturers, wholesalers, jobbers and retailers of foods and drugs. S. 152, to amend the law relating to the practice of pharmacy, proposes that any one who, while in the service of the armed forces, was regularly employed for a period of not less than twelve months in the preparation and dispensing of drugs and medicines and who, in addition thereto, has successfully completed at least two years of study in a recognized college of pharmacy may apply for a pharmacist's license.

Bills Passed.—H. 257 passed the house February 18. To amend the law relating to divorce, it proposes to authorize the granting of a divorce when one spouse has become permanently and incurably insane and has been confined in an asylum for at least five years prior to filing the suit. In such action the court shall find from the testimony of two or more physicians competent in psychiatry that such insanity is permanently incurable. S. 109 passed the senate February 14. To amend the law relating to the practic of chiropractic, it increases the required period of academic training and adds philosophy to the list of subjects which must be studied.

Massachusetts

Bills Introduced.—H. 951, to amend the law relating to medical examinatons of injured persons in connection with accident cases, proposes that, if a person injured in an accident unreasonably refuses to submit to a medical examination to be made in the presence of his physician after a written request therefor is made by or on behalf of any person from whom damages have been claimed, such refusal shall be admissible in evidence and a proper subject for comment at the trial of any action brought to recover damages for bodily injuries or death resulting from such accident. S. 407 proposes the revocation of the charter of the College of Physicians and Surgeons.

Bill Enacted.—H. 1468 has become chapter 33 of the Laws of 1946. It amends the law relating to the restraint of patients in mental hospitals and provides that "restraints" shall not include chemical or mechanical restraint in cases of contagious disease, during the administration of anesthesia or following an operation or accident which has caused serious bodily injury, or during the administration of shock therapy, insulin treatment or any other recognized specific therapy.

New Jersey

Bills Introduced.—A. C. R. 3 proposes the enactment of an unemployment sickness compensation law. A. 91 proposes the creation of a board of chiropractic examiners to examine, regulate, license and register persons desiring to practice chiropractic. Chiropractic is defined to be "the philosophy, art, science and practice of things natural; a system of adjusting the articulations of the spinal column and adjacent tissues by hand only for the correction of the cause of disease." Licentiates would have the right "to practice chiropractic within this state and to that end shall have authority to examine patients and to diagnose and adjust for any interference with the transmission of nerve energy and to prescribe or regulate the patient's dietary, sanitary and hygienic requirements; also to use the Neurocalometer, x-ray and any other instrument for the purpose of diagnosis or analysis only, and such licensee shall have the right to employ nurses and assistants." The proposal would also declare chiropractic not to be a limited branch of medicine and surgery and would authorize a licentiate to use the title "Doctor" in connection with his name when accompanied by the name chiropractor or D.C. A. 171 proposes the creation of a Bureau of Cancer Control under the supervision of a director who shall be a duly licensed medical physician in the state qualified by training and experience to direct the work of cancer control and competent to administer cancer clinics. The bureau shall establish four cancer clinics within the state, each one under the direction of a duly licensed medical physician. A. 178, to amend the law relating to institutions designed for the care of communicable diseases, proposes to omit from the existing law the requirement that the superintendent of any such institution be a reputable, licensed and qualified physician of the state of at least five years' experience.

New York

Bills Introduced.—A. Res. 68 proposes the creation of a joint legislative committee to make a survey and study of the social, educational and physical problems of individuals afflicted with cerebral palsy, with special attention to those whose muscle involvement is commonly referred to as (1) spasticity or (2) athetosis or (3) ataxia and including those who have similar central motor or sensory defects. A. Res. 70 proposes the appointment of a joint legislative committee to make a study and investigation "of the discriminatory practices being carried on by the American College of Surgeons" with reference to barring "Negro surgeons from fellowship therein" A 1117 and S 1033 propose a new law relating to the licensing and regulating of the practice of barbering Barbering is defined as the performance of certain practices, among which are the giving of facial or scalp massages with oils, creams, lotions or other preparations, either by hand or mechanical appliances to males only and another is the applying of cosmetic preparations, antiseptics, powders, oils, clays or lotions to scalp, face or neck of males only Specifically exempted from the provisions of this proposal are duly licensed physicians, osteopaths, dentists, optometrists, nurses or physiotherapists, and hairdressers or cosmetologists A 1145 and S 986 propose the creation of a temporary state commission to examine into the need for and to make recommendations relative to the creation of a state university A 1167, to amend the law relating to hypnotic and somnifacient drugs, would prohibit prescriptions therefor from being refilled if the prescription bears a direction to that effect The proposal would further authorize the prescriber to indicate the number of times a prescription may be refilled If the prescription is silent as to the refilling, then the prescription may be refilled by the pharmacist during a period of not more than six months from the original date of the prescription A 1170 is the same as S 620 previously reported To amend the law relating to action for damages for death caused by wrongful act and the distribution of the proceeds thereof, it proposes to put in the first priority of items to be paid for when damages are distributed the reasonable expenses of medical aid, nursing and attention incident to the injury causing death A 1179 and S 975, to amend the workmen's compensation law, propose to authorize injured claimants to have free choice of hospitals for the treatment of injuries A 1200 and S 958, to amend the education law, propose the establishment of a New York state university with, among other subjects, a school of medicine A 1204 and S 1000, to amend the law relating to privileged communications, propose the waiver of such privilege by any party in interest in any litigation wherein the interests of the personal representative of the deceased patient are deemed by the trial judge to be adverse to those of the estate A 1223 and S 956 propose the enactment of a new law providing for the examination, licensing and regulation of persons desiring to practice hairdressing and cosmetology To engage in the practice of hairdressing and cosmetology means a person who "holds himself out directly or indirectly as being able, or who offers or undertakes, by any means or method, with the aid of the hands or of mechanical, electrical or other apparatus or appliances and/or by the use of tonics, lotions, creams, cosmetics, cosmetic preparations or compounds, to wave, dye, color, bleach cut, arrange, dress, curl, cleanse, or stimulate the growth of the hair of the head of a female person or to massage, cleanse or exercise the scalp, face, neck or arms, or manicure the nails, of such person, or to do any similar work intended to enhance the appearance of such person" Specifically exempted from the provisions of this proposal are duly licensed physicians, osteopaths, dentists, optometrists, nurses or physiotherapists and barbers A 1249 and S 1099, to amend the law relating to the practice of osteopathy, propose that persons holding a license to practice osteopathy who have been granted the additional rights provided for under existing statutes and persons who shall meet all the preliminary and professional requirements required as of Sept 1, 1936 and have satisfactorily passed or shall satisfactorily pass the regular medical licensing examination shall be granted the right to practice medicine without limitation as defined by the statutes of the state of New York A 1325 and S 1149 propose the creation of a temporary commission to make a comprehensive study and analysis of the care and treatment of patients in the mental hospitals of the state who are children under 16, seniles, arteriosclerotics, alcoholics and psychopaths, and to devise and recommend ways and means of improving the care and treatment of such patients A 1356 and S 1189, to amend the law relating to live pathogenic micro organisms or viruses, propose that persons cultivating or possessing live pathogenic microorganisms or viruses must satisfy the commissioner of health that such organisms or viruses will not become a menace to the public health and shall register with the commissioner of health The registration must be renewed each year A 1442 and S 1186, to amend the workmen's compensation law, propose that no claim for services by an x-ray laboratory or other laboratory shall be valid or enforceable unless such laboratory has obtained a license from the industrial commissioner This proposal would not apply to an authorized and qualified physician doing his own x-ray work in connection with his own treatment of injured workmen S 1045, to amend the workmen's compensation law, proposes to authorize an injured employee to have free choice of a dentist when dental care and treatment are necessary S 1085 proposes a licensing law for persons desiring to perform scientific experiments and vivisection on living dogs These licensing provisions would not apply to any laboratory, experimental or scientific activity conducted by the state of New York or to any agency of the federal government operating in the state of New York but every agency of the state or federal government operating in New York State, conducting scientific experiments or vivisection on living dogs, shall register with the department on a special form to be prescribed by the commissioner, without the payment of any license fee The fee would be one thousand dollars and would be renewed annually S 1173, to amend the education law, proposes to require the licensing of dental laboratories S 1354, to amend the law relating to nonprofit medical and hospital service corporations, proposes to authorize the creation of dental expense indemnity service plans Dental expense indemnity would consist of reimbursement for dental care provided through duly licensed dentists and of furnishing necessary appliances, drugs, medicines and supplies, prosthetic appliances, orthodontic appliances, precious metal and ceramic restorations

Bills Passed—A 896 passed the assembly February 18 To amend the law relating to the practice of optometry, it proposes that applicants must be citizens of the United States or must have declared an intention of becoming such A 898 passed the assembly February 18 To amend the law relating to the practice of podiatry, it proposes that applicants must be citizens of the United States or must have declared an intention of becoming such

Coming Medical Meetings

Aero Medical Association Chicago April 7 9 Dr David S Brachman, 1016 Dime Building Detroit 26 Secretary
Alabama Medical Association of the State of, Birmingham April 16 18 Dr Douglas L Cannon, 519 Dexter Ave, Montgomery 4, Secretary
Alaska Territorial Medical Association, Juneau, March 11 13 Dr William P Blanton Juneau Secretary
American Association of Anatomists, Cleveland, April 4 6 Dr Eliot R Clark University of Pennsylvania School of Medicine, Philadelphia 4, Secretary
American Association of Pathologists and Bacteriologists Chicago March 8 9 Dr Howard T Karsner 2085 Adelbert Road Cleveland Secretary
American Physiological Society, Atlantic City, March 11 15 Dr Wallace O Fenn 260 Crittenden Blvd, Rochester 7, New York Secretary
American Society for Experimental Pathology, Atlantic City, March 11 15 Dr Harry P Smith 630 W 168th St, New York 32, Secretary
American Society for Pharmacology and Experimental Therapeutics, Atlantic City, March 11 15 Dr Raymond N Bieter, University of Minnesota Medical School Minneapolis, Secretary
American Surgical Association Hot Springs Va, April 2 4 Dr Warfield M Firor, Johns Hopkins Hospital, Baltimore 5, Secretary
Arkansas Medical Society, Little Rock, April 14 15 Dr W R Brooksher 602 Garrison Ave Fort Smith Secretary
Central States Dermatological Society, Detroit April 27 Dr Clarence E Reyner Henry Ford Hospital Detroit, Secretary
Chicago Medical Society Annual Clinical Conference Chicago, March 5 8 Dr Warren W Furey, 30 North Michigan Ave Chicago 2, Secretary.
Dallas Southern Clinical Society Dallas Texas March 18 21 Dr. John G Young 1719 Pacific Avenue Dallas 1 Director of Clinics
Federation of American Societies for Experimental Biology, Atlantic City, March 11 15 Dr D R Hooker, 19 West Chase Street, Baltimore 1, Secretary
Florida Medical Association, Jacksonville, April 22 24 Dr Robert B McIver, P O Box 1018, Jacksonville, Secretary
Iowa State Medical Society, Des Moines, April 17 19 Dr John C Parsons 406 Sixth Ave, Des Moines 9, Secretary
Kansas Medical Society, Wichita April 22 25 Dr F R Croson, 112 W Sixth St, Topeka, Secretary
Medical Library Association, New Haven, Conn, March 25 27 Miss Frida Pliefke, 2006 Medical Arts Bldg Minneapolis 2 Secretary
Missouri State Medical Association St Louis, March 24 26 Dr Ralph L Thompson, 634 N Grand Blvd, St Louis 3, Secretary
New Orleans Graduate Medical Assembly, New Orleans April 1 4 Dr Joseph S D Antoni, 1430 Tulane Ave, New Orleans 13 Secretary
Postgraduate Institute of the Philadelphia County Medical Society, Philadelphia, April 9 12 Dr George P Muller, 301 S 21st St, Philadelphia, Director
Southeastern Surgical Congress, Memphis Tenn, March 11 13 Dr Benjamin T Beasley 45 Edgewood Ave S E Atlanta 3 Georgia Secretary
Tennessee State Medical Association Knoxville April 9 11 Dr W M Hardy, 706 Church Street Nashville Secretary

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education and public health.)

ALABAMA

Charles Thigpen Honored on Eightieth Birthday.—The Montgomery County Medical Society gave a dinner on January 15 in honor of Dr. Charles A. Thigpen, Montgomery, who on December 19 observed his eightieth birthday. Dr. Thigpen served as president of the Medical Association of Alabama in 1935. The previous year he had received the honorary degree of doctor of laws from the University of Alabama.

Changes in Health Officers.—Dr. Arthur M. Shelamer, Athens, has been appointed health officer of Madison County. Dr. Maurice M. Duncan, Huntsville, has been serving in the position since Dr. William C. Hatchett, Huntsville, resigned to join the Florida State Department of Health. Dr. Carl A. F. Holler, Fort Payne, has resigned as health officer of DeKalb County to accept a similar position in Etowah County with headquarters in Gadsden, effective February 1.

CALIFORNIA

University News.—The Stanford University School of Medicine, San Francisco, announces that the Winthrop Chemical Company has extended for another two years its fellowship for the training of medical graduates in the teaching and research of pharmacology.

Industrial Hygiene Change.—Dr. Douglas G. MacPherson, Van Nuys, formerly director of the Los Angeles City division of industrial hygiene, has been appointed chief of the Los Angeles County division of industrial hygiene. He succeeds Dr. Hugh Dierker Jr., Los Angeles, who has become medical director of the southern California division of General Motors.

Medical Veterans Organized.—Dr. William H. Leake, Beverly Hills, was named president of the Medical Veterans at its organization meeting in Los Angeles January 4 and Dr. Frederick A. Bennetts, Los Angeles, secretary. An executive committee was formed and directed to prepare a constitution and by-laws. The immediate objective of the new organization is to assist physicians returning from service in reestablishing their practice. Such problems as office space, purchase of surplus medical property, delay in obtaining narcotic licenses and ineligibility of physicians on terminal leave to the educational and loan provisions of the G. I. Bill of Rights will be studied through specially appointed committees.

CONNECTICUT

Personal.—Dr. Emerick Friedman, senior physician at the Norwich State Hospital, has been promoted to clinical director, effective February 1.

The Building Fund.—The original goal of $50,000 for the building fund of the Connecticut State Medical Society has been passed. Funds will continue to be solicited, however, in the face of uncertain building costs.

DELAWARE

Society News.—Dr. Thomas M. Durant, associate professor of medicine, Temple University School of Medicine, Philadelphia, addressed the New Castle County Medical Society in Wilmington, January 15, on "Recent Advances in the Etiology and Treatment of Coronary Heart Disease." Dr. Joseph Stokes Jr., professor of pediatrics, University of Pennsylvania School of Medicine, Philadelphia, addressed the society, February 19, on "Influenza and Virus Pneumonia."

GEORGIA

Grants for Research.—Frederick Stearns and Company, Eli Lilly and Company and Ciba Pharmaceutical Products, Inc., have established grants to the pharmacology department of the University of Georgia School of Medicine, Augusta, totaling $5,400 for the year of 1946. These funds are to support fellowships and technical help in investigating the pharmacology of the uterus in pregnancy and dysmenorrhea. One of these fellowships will be available in September 1946, with opportunity for the fellow to take part time medical work.

The Fischer Awards.—Dr. C. Dixon Fowler has received the Dr. Luther C. Fischer Award for the paper showing the best original research on "A Study of Malaria on Island X in the Pacific," and Dr. Roy S. Leadingham, both of Atlanta, the Fischer Award for the best written paper on "The Medical History in Physical Diagnosis." The prizes are awarded through the Fulton County Medical Society and honor Dr. Fischer, one of the founders of the Atlanta School of Medicine, where he was professor of anatomy and clinical surgery. The awards, consisting of $100 each, were established by Dr. Fischer in 1925.

ILLINOIS

X-Ray Testing Program.—On January 10 Gov. Dwight H. Green was the subject of the first x-ray in the mobile x-ray unit which is a part of a new initiated tuberculosis program conducted by the Illinois State Department of Public Health. The service is being offered to the people of the state free of charge.

Changes in Division Heads.—Lieut. Col. G. Howard Gowen has been appointed chief of the division of cancer control in the department of public health, effective March 1. Dr. Gowen graduated at the Northwestern University Medical School, Chicago, in 1926. He was epidemiologist for the state department of public health in 1936 and 1937. Thereafter he served as health officer of Champaign-Urbana, as administrative assistant in the Chicago Board of Health and as a member of the faculty of the Graduate School of Public Health at the University of Michigan Medical School, Ann Arbor. Lieut. Comdr. John F. Shronts, on terminal leave after nearly four years' service in the navy, has been named chief of the division of industrial hygiene, effective March 10. The position was formerly held by Dr. Milton H. Kronenberg, who resigned to become assistant to the medical director at the Caterpillar Tractor Company, Peoria. (The Journal, Oct. 14, 1944, p. 444). Dr. Shronts graduated at Northwestern University Medical School in 1936. Prior to entering the navy he was district health superintendent for the state department of public health with headquarters at Woodstock.

Chicago

The Ludvig Hektoen Lecture.—The twenty-second Ludvig Hektoen Lecture of the Frank Billings Foundation will be delivered at the Palmer House, March 22, by Dr. Simeon B. Wolbach, Shattuck professor of pathologic anatomy, Harvard Medical School, Boston. His subject will be "Vitamin A Deficiency and Excess in Relation to Skeletal Growth."

Placement Service for Psychiatrists.—The Illinois Society for Mental Hygiene announces a new placement service for psychiatrists at 343 South Dearborn Street. A complete roster of opportunities for employment, education and fellowships in Illinois will be set up for the convenience of applicants. Inquiries may be addressed to Dr. Rudolph G. Novick, Elgin, Ill., medical director of the society. The society for mental hygiene opened a series of lectures February 1 with a talk by Dr. David Slight on "Who is Normal?" The second lecture was given by Dr. Slight February 8 on "Who is Abnormal?" Dr. John P. Spiegel explained February 14 what a psychiatrist's treatment consists of and Mr. Louis De Boer, February 21, the importance of prevention and what preventive services are available.

INDIANA

George Brother Heads New Bureau.—Dr. George M. Brother, Indianapolis, recently released from military service, has been placed in charge of a new bureau of preventable diseases of the Indiana State Board of Health. The bureau will include the divisions of tuberculosis control, venereal disease control, industrial hygiene, dental health, adult hygiene and geriatrics, and communicable disease control. According to the *Journal of the Indiana State Medical Association*, grouping of these several divisions with related activities into one bureau will facilitate coordination and administration of activities and result in a more effective preventable disease program. Previous to his enlistment, Dr. Brother organized District Health Department Number 4 in the southeastern part of Indiana and later served as director of the division of local health administration with the state board of health.

KENTUCKY

Survey of Hospital Facilities.—Dr. William B. Atkinson, Campbellsville, formerly state medical officer for Selective Service, has been named acting director of a newly created division of medical and related services in the state department of health. The first activity of the division is to be a survey of hospital and nursing facilities as well as a study to determine the number of physicians in the state. The new division is the result of an executive order of Governor Simeon S. Willis.

Changes in State Health Personnel.—Dr. William F. Lamb, Russellville, recently returned from military service, has been appointed director of the division of venereal disease of the state department of health. Dr. Wayne L. Ritter, Louisville, on leave from the U. S. Public Health Service, has resigned as director of the bureau of industrial hygiene. Mr. W. W. Stalker is currently acting director of the division. Mr. Charles E. Tucker, recently released from military service, has been named educational director of a new cancer control program inaugurated by the state department of health in cooperation with the Kentucky Field Army of the American Cancer Society.

Physician Honored.—Dr. John M. Ryan, Carrollton, has been selected as the recipient of the Citizenship Award given each year by the Carrollton Chamber of Commerce to the man who, in the opinion of the organization, has rendered most valuable service to the community during the year. The citation accompanying the award announced that, "in view of his unselfish devotion to duty not only during the year of 1945 but also during the trying times forced on us by the shortages in his field during World War II, and being mindful of his contribution not only in time and in money but particularly the sacrificing of his personal health, we respectfully suggest that the Citizenship Award for the year 1945 be conferred on Dr. John Maxwell Ryan."

MARYLAND

Personal.—Dr. Joseph P. Franklin, Cumberland, who has been on military leave since February 1941, has returned as deputy state and county health officer of Allegany County.

Borden Award Goes to Edwards Park.—The American Academy of Pediatrics presented to Dr. Edwards A. Park, Baltimore, the Borden Award, consisting of a medal and $1,000. The award is granted annually to the specialist considered to have done the best research in nutrition in the field of pediatrics. Dr. Park's work was in nutrition to combat rickets. He graduated at Columbia University College of Physicians and Surgeons, New York, in 1905 and is professor of pediatrics at Johns Hopkins University School of Medicine, Baltimore.

MASSACHUSETTS

Ether Centenary.—Plans are now being made to observe the one hundredth anniversary of William T. G. Morton's demonstration of the use of ether for anesthesia. It is planned tentatively to hold symposiums during the days of October 14-16 and a special commemorative dinner Monday evening October 14.

Hugh Cabot Memorial Fund.—Two million dollars will be sought in a campaign by the Hugh Cabot Memorial Fund to erect a penicillin research laboratory and plant in Russia. Harlow Shapley, ScD., director of the Harvard Observatory and chairman of the national committee of the fund, indicated in a statement to the press that a campaign would be launched at a dinner February 13. Dr. Hugh Cabot died Aug. 14, 1945.

New Appointments in Physiology.—Hans O. Haterius, Ph.D., professor of physiology, Wayne University College of Medicine, Detroit, has been appointed professor of physiology and chairman of the department of physiology in the Boston University School of Medicine. Dr. George L. Maison, formerly assistant professor of physiology at Wayne University, has been appointed associate professor of physiology at the medical school. Dr. Maison recently was released from the Army of the United States, where he was engaged in aeromedical research. For his work in developing the anti-G suit Dr. Maison was awarded the Legion of Merit.

Camp Miles Standish Proposed as School for Adult Mental Defectives.—The Massachusetts Department of Mental Health, as soon as Camp Miles Standish was declared surplus property, applied to the government for purchase of the site for an institution for the care of mentally defective persons. At present it is planned that the institution will be used as an industrial and agricultural training school for the adult mental defectives who are transferred from the present schools. The vacancy thus created in the older schools will be for the admission of younger mental defectives who may be suitable for educational programs. It is planned that the institution shall have a final capacity for 2,000 mental defectives.

MICHIGAN

Changes in Health Personnel.—Dr. Robert R. Scott, Beulah, recently released from military service, has been appointed director of the Mason County Health Department. Dr. Robert L. Loftin, Cynthiana, Ky., who recently resigned as health officer of Harrison County, is the new health officer of the Bay City-Bay County Health Department. Dr. Edward F. Fisher, Dearborn, resigned the presidency of the Dearborn City Council to become director of the Dearborn Department of Health and Recreation.

New Public Relations Counselor.—Hugh W. Brenneman, recently returned from navy service as a destroyer communication and public relations officer, was on January 19 appointed public relations counsel for the Michigan State Medical Society, with headquarters at the executive offices in Lansing. Mr. Brenneman, since his graduation from Alma College in 1936, has had varied experiences, including service with the Associated Press, as a radio announcer and as president of the Wexford-Missaukee Teachers Association.

MINNESOTA

Medical School Cooperates in Care of Veterans.—A plan to add 146 physicians to the Veterans Administration Hospital, Minneapolis, through the cooperation of the University of Minnesota Medical School, was announced January 13. The program is the outgrowth of a law passed recently by Congress creating a bureau of medicine and surgery within the Veterans Administration. The program will add 35 men with rank of senior consultant, 43 consultants and 68 resident physicians or fellows. It provides placing of veterans' hospital standards on university medical school standards through direct supervision of all appointments of doctors by the dean of the university medical school; introduction of specialists drawn from all parts of the nation under supervision of a university "Dean's Committee"; setting up a fellowship system under which 68 university graduate doctors will work in the veterans' hospital on a full time basis while obtaining specialists' ratings, and ability instead of civil service status as the primary basis for appointment of physicians, with veterans given voluntary preference wherever possible. The program is similar to one described in The Journal, February 2, page 297, and to those planned for ten additional veterans' hospitals through cooperation of forty-six approved medical schools. Under the program 35 senior consultants, all specialists, will be appointed to make rounds in the hospital, aid in the treatment of special cases, hold conferences with the new staff and present resident doctors and act as consultants in difficult rehabilitation cases. The 43 men of "consultant" rank will comprise a visiting staff, spending roughly half of their time at the hospital and holding responsibility for the patients. Another 68 ward officers or resident doctors authorized will be full time resident doctors attending patients. They will be a "highly selected" group of university graduates, recommended by Dr. Harold S. Diehl, Minneapolis, who have finished internships, have had three or more years of military service and have some graduate training beyond internship. All senior consultants and consultants will be men who have qualified for certification by examining boards as specialists. Authorized by the national Veterans Administration are 61 men in surgery and surgical specialties, 65 in medicine and medical specialties and 20 in laboratory and x-ray specialties.

MISSOURI

First Hanau W. Loeb Lecture.—The first annual Hanau W. Loeb Lecture was given by Edward A. Doisy, Ph.D., St. Louis, at the St. Louis Medical Society Auditorium, December 10. He discussed "Vitamin K."

Ninety-Seven Years of Age.—Dr. Jacob D. Smith, Shelbina, observed his ninety-seventh birthday January 25. Dr. Smith graduated at Rush Medical College, Chicago, in 1870, first locating in Shelbyville. Dr. and Mrs. Smith on February 20 celebrated their seventy-third wedding anniversary. Mrs. Smith is 94 years of age.

Returning Faculty Members Honored.—A dinner was held in the Hotel Statler February 27 by the Rev. Alphonse M. Schwitalla, S.J., dean of the St. Louis University School of Medicine, and the administrative board, to welcome the 70th General Hospital and faculty members returning home from service. Speakers at the dinner included Major Gen. George F. Lull, U. S. Army, and Capt. Francis J. Braceland (M.C.), U.S.N.R.

Chemists Win Award.—Drs. Carl F. and Gerty T. Cori, head of the department of pharmacology and associate professor of biochemical research, respectively, Washington University School of Medicine, St. Louis, on February 3 were announced as co-winners of the second annual Midwest Award of the St. Louis section of the American Chemical Society. The award, a gold medallion, is made annually by the St. Louis section in recognition of "meritorious contribution to the advancement of pure or applied chemistry or chemical education." The formal presentation will take place March 21. The Coris received the award for their studies of the biochemistry of enzymatic reactions involved in carbohydrate metabolism. Both physicians graduated at the Deutsche Universität Medizinische Fakultät, Prague, Czechoslovakia, in 1920.

NEW YORK

Max Poser Dies.—Max H. Poser, known for his research in the field of optics, died in his home in Rochester, January 4, aged 75. In 1937 Dr. Poser was made a life technical adviser of the American Academy of Ophthalmology and Otolaryngology.

Fifty Thousand Dollars for Cancer.—Under the will of Mrs. Ruth Wheelock, who died Nov. 26, 1945, the bulk of her "more than $50,000 estate will go to the University of Rochester School of Medicine and Dentistry . . . to become a part of its cancer research fund."

Colgate Plans Medical Service.—With the appointment of Dr. John H. Rathbone as university physician and director of the department of student health at Colgate University, announcement was made that the university was making plans for a new medical center which would service the community as well as the student body and faculty. Dr. Rathbone is the prospective director of the center. An alumni representative on the board of trustees, Dr. Rathbone has been a member of the faculty of the Columbia University College of Physicians and Surgeons since 1931.

Personal.—Dr. John C. Eccles of the University of Otago, New Zealand, lectured at a conference sponsored by the New York Academy of Sciences, February 8-9. Dr. Eccles, who attended the conference at the request of the Rockefeller Institute for Medical Research, spoke on "Physicochemical Mechanism of Nerve Activity."——Dr. Donald C. O'Connor, Buffalo, has been named superintendent of the Edward J. Meyer Memorial (City) Hospital to fill the vacancy that occurred when Dr. William T. Clark, Buffalo, resigned on July 1, 1945.——Dr. Bernard S. Strait, Penn Yan, was installed as state Kiwanis governor at a convention in Albany, January 20.——Dr. Hugh H. Shaw on December 31 resigned as health officer of Utica after holding the position for twenty-six years.

State Care for Defective Infants.—The New York State Department of Mental Hygiene, at the direction of Governor Thomas E. Dewey, will accept into its institutions a limited number of mentally defective infants under the age of 5. The change in policy is due to the wartime increase in the number of infant defectives, making it impossible for local facilities and private families to continue to carry the main responsibility for their care. While the number will be limited, when the postwar building programs are completed at the state schools for defectives the number admitted will be greatly expanded. Only the most urgent cases will be granted immediate admission, cases which, in the opinion of department investigators, will grant immediate relief to the infant or the infant's family. The policy of the state for many years has been against accepting infant defectives into its institutions, except for occasional emergency cases, on the theory that the care of defective infants under 5 was primarily the responsibility of the family or the local welfare units, since the nursing factor in those cases usually outweighs the mental care. A $17,000,000 postwar building expansion program at the six state schools for the mentally defective and at Craig Colony for the Epileptic has been authorized, and an additional $2,000,000 program to build children's hospitals at four of these institutions has been proposed.

Druggist Guilty of Fatal Sulfonamide Dosage.—Jacob Greenwald, East Elmhurst, Queens, was convicted February 11 on a charge of second degree manslaughter following the death of a baby after being treated with six times as much sulfathiazole as a physician prescribed. The excessive dosage was considered a druggist's error and Greenwald was sentenced to a minimum term of one to two years in Sing Sing. Execution of the sentence was stayed and a certificate of reasonable doubt was granted which has the effect of an appeal and calls for a ruling by the appellate division before the sentence can be carried out, newspapers reported. Commenting that this was the first sulfathiazole case in the criminal courts of New York, Judge Thomas Downs said he believed the five judges of the appellate court should review the conviction because of "the unknown lethal qualities" of the drug. During the trial Alexander O. Gettler, Ph.D., New York toxicologist, and Dr. Jacob Werne, Jamaica, assistant medical examiner, testified that medical science does not know just what constitutes a lethal dose of sulfathiazole. Testimony showed a physician had prescribed 21 grains of the drug to be administered at the rate of 3 grains each four hours. Greenwald said he misconstrued the prescription and gave the child's father 147 grains in 7 grain doses. The baby got doses of 21 grains each four hours for twenty-four hours, a total of 126 grains.

New York City

University News.—Sharp and Dohme, Inc., has given $2,200 to Columbia University College of Physicians and Surgeons in support of Dr. Erwin Brand's work on proteins and amino acids.

Pamphlet on Syphilis.—The Community Service Society of New York City prepared a pamphlet on syphilis for the use of nurses doing family work. The pamphlet is made available at 5 cents a copy on orders of 1 to 100 and 4 cents on orders of over 100. The Department of Educational Nursing can be addressed at 105 East 22d Street, New York 10.

Alumni Day.—On February 22 the Alumni Association of the New York University College of Medicine held its tenth annual Alumni Day. The program included a scientific session and a dinner in the evening in honor of Dr. Arthur M. Wright, who has announced his retirement as George David Stewart professor and chairman of the department of surgery. Among the speakers were:

Drs. Hervey C. Williamson, Currier McEwen and Luther E. Holt Jr., A Reevaluation of the Vitamins.
Dr. Colin M. MacLeod, Certain Aspects of Chemotherapy.
Dr. Frank W. CoTui, *Protein Metabolism* in Disease and Injury.
Dr. Leonard J. Goldwater, Group Medical Practice.

A feature of the dinner honoring Dr. Wright was the presentation to Harry W. Chase, chancellor of the university, of a check for $575,000, representing the amount raised by the Alumni Association in its five month [illegible] of an auditorium in the new New [illegible] Medical Center.

Whipple Award to "Josie and Trixie."—On February 6 the American Museum of Natural History and the Friends of Medical Research presented a preview of a new exhibit, "Really Man's Best Friend." A feature of the event was the presentation of the first Whipple Award to "Josie and Trixie" of the School of Medicine and Dentistry of the University of Rochester. The dogs are the descendants of the original dogs used by Dr. George H. Whipple, Rochester, in his research on anemia. This award, established by the Friends of Medical Research and named for Dr. Whipple, who was given the Nobel Prize for research which led to the development of liver therapy for pernicious anemia, took the form of two leather collars bearing silver tags on which were described the services of the dogs in acting as experimental animals in blood plasma research. Josie and Trixie were brought to the ceremonies at the Museum of Natural History by Dr. Frieda S. Robbins, Rochester, Dr. Whipple's research associate of many years.

Residencies and Fellowship in Physical Medicine.—As one phase of its program of teaching and research in the field of physical medicine, the faculty of Columbia University College of Physicians and Surgeons, with the cooperation of a group of its affiliated hospitals, has established residencies and fellowships to provide training in physical medicine on a graduate level. The first group of residents were to be appointed by the hospitals before March 1 and will spend the months of April through June in an introductory course before beginning clinical work in the hospitals. For residencies the annual stipend varies with the hospital but includes maintenance or its equivalent. Applicants must have graduated from a medical school and have completed an internship approved by Columbia University. Applications should be submitted to the directors of the following hospitals:

Presbyterian Hospital, 620 West 168th Street, New York 32.
New York Post-Graduate Medical School and Hospital, 303 East 20th Street, New York 3.
Mount Sinai Hospital, Fifth Avenue at 100th Street, New York 29.
St. Luke's Hospital, 421 West 113th Street, New York 25.
Goldwater Memorial Hospital, Welfare Island, New York.
Montefiore Hospital, 150 East Gunhill Road, New York 67.
Hospital for Joint Diseases, 1919 Madison Avenue, New York 35.

A limited number of those who have completed the first or second years of the residency may apply for fellowships in physical medicine in Columbia University under a grant from the Baruch Committee on Physical Medicine. Fellowships are devoted to basic research related to physical medicine. The annual stipend is $2,500 without maintenance.

OREGON

Health Board Activities.—The Oregon State Board of Health will soon move to new quarters at Southwest Eleventh Avenue and Salmon Street in the building formerly occupied by the Behnke-Walker business college. The action follows approval at the annual board meeting in Salem of a five year lease on two floors of the building. Recent sale of the Oregon building, in which the board now has offices, brought about the change. Changes in personnel approved by the board include the resignation of Dr. Donald J. Bourg, The Dalles, as director of the division of maternal child health. The appointments of Dr. Daniel C. Kelley, Lawrenceville, Ga., as health officer of Clatsop County and the reinstatement of Dr. Richard Wilcox, Pendleton, recently returned from military service, as health officer of Umatilla County, have been announced.

TENNESSEE

Twenty-Five Years as Health Officer.—Dr. John J. Lentz on December 8 completed twenty-five years as director of the Davidson County Health Department, Nashville.

New Pediatric Head at Tennessee.—Dr. Frank T. Mitchell, Memphis, has been appointed professor and head of the department of pediatrics at the University of Tennessee College of Medicine, Memphis. He succeeds Dr. Edward C. Mitchell, who has been named emeritus professor. Dr. James G. Hughes has been promoted to associate professor of pediatrics and will devote his full time to the department.

Postgraduate Activities.—A postgraduate medical extension course in gynecology by Dr. Joseph R. B. Branch, Macon, Ga., has just closed in West Tennessee. In Memphis the registrations were so many that it was necessary to divide the Memphis group into three sections with the Millington Navy Base Medical Officers' meeting at John Gaston City Hospital with a total of forty-seven registered, the Army Medical Officers' meeting at Kennedy General Hospital with a total of forty registered, and with physicians in civilian practice of Shelby County and vicinity meeting at Methodist Hospital with a registration of 199. The course by Dr. Branch has already functioned over a period of a year in Tennessee and has included five circuits of twenty-two teaching groups with a total registration of 590. January 17 he opened a course in Nashville and vicinity with centers at Clarksville, Springfield and Dickson. The course will be given also for a group of medical officers at Camp Campbell, Meharry Medical College for a colored group and his final lecture each week with physicians of Nashville at Nashville General Hospital. This course in gynecology has been very popular among both medical officers of Tennessee on duty in various camps of army and navy establishments as well as civilian practitioners. Dr. Branch, the instructor, has just rounded out three years of postgraduate teaching in Tennessee. His first two years were spent in giving a course in surgical diagnosis in which 1,418 physicians registered and took the course in forty-seven teaching centers. One more year of instruction in gynecology in other areas in Tennessee will be given by Dr. Branch. The program is financed by contributions from the Commonwealth Fund of New York, the Tennessee State Health Department and the two medical schools of Vanderbilt and the University of Tennessee, and appropriations from the treasury of the Tennessee State Medical Association plus fees of the physicians. Mr. L. W. Kibler, who recently resigned as field director of the postgraduate course conducted by the postgraduate committee of the Oklahoma State Medical Association, now occupies a similar position with the committee on postgraduate instruction in gynecology of the Tennessee State Medical Association.

VIRGINIA

Coroner Goes to Korea as Missionary.—Dr. Robert Wilson, since the fall of 1941 city coroner of Richmond, is returning to Korea early in the new year to resume his medical missionary work, which was interrupted by the war. Prior to returning to America, Dr. Wilson had spent more than thirty years in Korea.

Joseph Barrett Named Mental Hygiene Head.—Dr. Joseph E. Barrett, Marion, superintendent of the Eastern State Hospital, Williamsburg, has been appointed commissioner of the Virginia State Department of Mental Hygiene and Hospitals. He succeeds Dr. Hugh C. Henry, who died Oct. 14, 1945. The position at the time Dr. Henry assumed it was a newly created one provided in the state government reorganization act, effective July 1, 1942. Dr. Barrett, who graduated at the University of Tennessee College of Medicine, Memphis, in 1922, formerly was director of the Michigan state hospital commission and assistant commissioner of the Massachusetts Department of Mental Hygiene.

GENERAL

National Noise Abatement Week.—April 28-May 4 has been designated National Noise Abatement Week, with the establishment of noise control on the agenda of all cities by city planning commissions as the keynote of the campaign.

Joe Savage Named Executive Director of Infantile Paralysis.—Mr. Joe W. Savage, Charleston, W. Va., who was recently discharged from the Army Air Force with the rank of major after more than three years' service, has been given the title of executive director of the National Foundation for Infantile Paralysis, it was announced February 13. The appointment of Mr. Savage to the foundation was reported in The Journal, Oct. 6, 1945, page 472.

Plotz Foundation for the Advancement of Scientific Investigation.—During 1945, the twenty-second year of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation, thirty-eight applications for grants were received by the trustees, twenty-five of which came from the United States, the other thirteen coming from five different countries in Europe, Asia and North and South America. In the twenty-two years of its existence the foundation has made 531 grants, which have been distributed to scientists throughout the world.

Panel on Juvenile Delinquency.—Twenty-eight persons, each prominent in his field, were named by Attorney General Tom C. Clark February 9 as a national volunteer advisory panel to study the growing problem of juvenile delinquency. The attorney general said that the panel was not limited to the number announced and that others would be named from time to time. The panel was created to assist the department of justice in the formulation of plans to combat the upsurge in serious crimes being committed by teen-agers, both boys and girls.

Scott Awards Go to Goodpasture and Cohn. — On January 17 the John Scott Award, given by the Philadelphia Board of City Trusts, went to Dr. Ernest W. Goodpasture, professor of pathology and dean of the Vanderbilt University School of Medicine, Nashville, for his "development of a method for the cultivation of viruses that have made hitherto unknown vaccines possible." Edwin J. Cohn, Ph.D., professor of biochemistry, Harvard Medical School, Boston, received a similar award for developing "a substitute for dried blood plasma used in the treatment of shock in the war."

Examination in Orthopedic Surgery.—The American Board of Orthopaedic Surgery announces that examinations (part I) are scheduled to be given in New Orleans May 3-4, St. Louis and San Francisco May 10-11, and Philadelphia May 17-18. Applications must be received by the secretary on or before March 10. Part I of the examination will not be repeated until the spring of 1947. Part II will be given in Chicago in January 1947 preceding the meeting of the American Academy of Orthopaedic Surgeons. Correspondence and applications related to part I of the examinations should be sent to Dr. Guy A. Caldwell, 3503 Prytania Street, New Orleans 15. After July 1 all correspondence and applications for part II should be sent to Dr. Francis M. McKeever, 1130 West 6th Street, Los Angeles 14.

Arthritis Research Foundation Formed.—Establishment of a National Arthritis Research Foundation was announced at a meeting in the Blackstone Hotel, Chicago, February 10. A campaign for $2,500,000 will be launched to set up the foundation as a national and independent center for studying the cause and treatment of rheumatic diseases. The main buildings will be located in Hot Springs National Park. Present officers of the foundation include Judge A. B. Frey, St. Louis, president, and Mr. Walter W. Head, president of the General American Life Insurance Company, treasurer. As president of B'nai B'rith, which founded the Levi Memorial Hospital, Mr. Henry Monsky, Omaha, has been designated as honorary chairman of the campaign. Hon. Allen May, president, Mutual Life Insurance Company of St. Louis, is chairman of the insurance division. Mr. Louis Kranitz, St. Joseph, Mo., is chairman of the national campaign committee. The creation of the foundation stemmed from the plan of the Leo N. Levi Memorial Hospital, Hot Springs, Ark., to develop a research wing. Instead the hospital abandoned its own plans to assist in the creation of the national foundation.

Deaths

Henry Wellman Emile Walther ⊕ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1910; born in New Orleans, Sept. 7, 1888; appointed professor and head of the department of urology at the Graduate School of Medicine of the Louisiana State University Medical Center in 1937; member of the House of Delegates of the American Medical Association from 1932 to 1935 and chairman of the Section on Urology, 1937-1938; specialist certified by the American Board of Urology, Inc.; member of the American Urological Association and co-founder of the Southeastern Branch, of which he had been president in 1936; treasurer of the Orleans Parish Medical Society, 1917-1918; co-founder and past president of the Louisiana Urological Society and the New Orleans Social Hygiene Society; member of the Southeastern Surgical Congress, American Neisserian Society, Southern Medical Association, serving as chairman of its section on urology in 1923, and the Louisiana State Medical Society, serving as chairman of its section on urology in 1927; fellow of the American College of Surgeons; vice president of the second Pan American Medical Congress; assistant surgeon, U. S. Public Health Service, during World War I; consulting urologist on the medical advisory board, Selective Service System, during World War II; served on the staffs of the Southern Baptist Hospital, Charity Hospital, U. S. Marine Hospital, Illinois Central Railway Hospital and the Hotel Dieu; member of the Art Association of New Orleans, serving as president from 1930 to 1934, Isaac Delgado Museum of Art, serving as vice president, and the Friends of the Howard-Tilton Memorial Library of Tulane University, of which he had been co-founder and past president; in 1937 resigned as editor of the *New Orleans Medical and Surgical Journal;* died January 6, aged 57.

William Jepson ⊕ Sioux City, Iowa; born in Aarhus, Denmark, June 29, 1863; State University of Iowa College of Medicine, Iowa City, 1886; University of Pennsylvania Department of Medicine and Jefferson Medical College, Philadelphia, 1891; licentiate of the Royal College of Physicians, Edinburgh, Royal College of Surgeons, Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow, 1897; an Affiliate Fellow of the American Medical Association, serving as a member of its House of Delegates in 1906-1907, 1926, 1928, 1929 and 1930; past president of the state board of medical examiners, Tri-State Medical Society, Iowa Clinical Surgical Society, Iowa State Medical Society, Woodbury County Medical Society and the Sioux Valley Medical Society; past state chairman for the American Society for the Control of Cancer; member of the Western Surgical Association; fellow of the American College of Surgeons and the International College of Surgeons; since 1938 professor emeritus of surgery at the State University of Iowa College of Medicine in Iowa City, where he was professor and head of the department of surgery from 1902 to 1913; formerly professor of surgery at the Sioux City College of Medicine; served as a member of the faculty of medicine of the University of South Dakota; member of the founders group of the American Board of Surgery; surgeon of the 56th Regiment of the Iowa National Guard from 1907 to 1916 with the rank of major; during 1916 and 1917 served as surgeon of the Second Iowa Regiment on the Mexican border and during World War I was chief surgeon at the Base Hospital, Camp Bowie, Texas; active in establishing St. Joseph Hospital; died November 30, aged 82, of urinary obstruction and uremia.

Isaac Hall Manning, Chapel Hill, N. C.; Long Island College Hospital, Brooklyn, 1897; born in Pittsboro, Sept. 14, 1866; since 1939 Kenan professor emeritus of physiology at the University of North Carolina School of Medicine, where he had been professor of physiology since 1901 and dean from 1905 to 1933; in 1933 president of the Medical Society of North Carolina, of which he had been an honorary member; president of the Hospital Savings Association of North Carolina, Inc., from the time of its organization in 1935 until 1942, when he became chairman of the board of medical directors; member of the American Medical Association; fellow of the American College of Physicians; in 1940 the Alumni Association of the University of North Carolina School of Medicine presented his portrait to the university; died February 12, aged 79.

David Alfred Horner ⊕ Chicago; Rush Medical College, Chicago, 1908; assistant professor of obstetrics and gynecology at the Northwestern University Medical School; served with the British Expeditionary Force and the American Expeditionary Forces during World War I and was awarded the Distinguished Service Cross; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; member of the Central Association of Obstetricians and Gynecologists; served as president of the Chicago Gynecological Society; fellow of the American College of Surgeons; served on the staff of the Chicago Lying-in Hospital; died in the Michael Reese Hospital November 8, aged 61, of pyelonephritis, prostatic hyperplasia and unipolar spongioblastoma.

Edwin Phillip Wolfe ⊕ Colonel, U. S. Army, retired, Palo Alto, Calif.; Columbian University Medical Department, Washington, D. C., 1896; veteran of the Spanish-American War; in the medical supply department at Washington, D. C., during World War I; for his work as officer in charge of getting supplies overseas awarded the Distinguished Service Medal; fellow of the American College of Surgeons; entered the army as assistant surgeon in January 1899; rose through the various grades and promoted to colonel in 1917; retired Aug. 13, 1929 for disability in line duty; died in the Dibble General Hospital, Menlo Park, January 8, aged 74, of dissecting aneurysm of the aorta with rupture into the right pleural cavity.

Edward William Koch ⊕ Buffalo; Rush Medical College, Chicago, 1911; since 1930 dean and since 1918 professor of pharmacology at the University of Buffalo School of Medicine, where he had been secretary of the faculty from 1918 to 1928 and acting dean from 1928 to 1930; since 1936 dean of the University of Buffalo Dental School; instructor in physiology and pharmacology at the Indiana University from 1913 to 1915; pharmacologist at Eli Lilly & Company from 1915 to 1918; fellow of the American Association for the Advancement of Science and the Indiana Academy of Science; served an internship at the Presbyterian Hospital in Chicago; died February 9, aged 64.

Charles M. Allmond, Carrcroft, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1889; formerly mayor and secretary of the board of health in Newark; at one time member of the Homeopathic Medical Society Examining Board; for many years on the staff of the Memorial Hospital, Wilmington, where he died November 2, aged 79.

Arthur G. Altham ⊕ Sheldon, Mo.; University Medical College of Kansas City, 1905; honorary member of the Missouri State Medical Association; died October 29, aged 66.

Jesse Earle Ambler ⊕ Ford City, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1908; found dead November 23, aged 66.

Edward Thomas Anderson, Excelsior, Minn.; Sioux City (Iowa) College of Medicine, 1897; served during World War I; died in the Veterans Administration Facility, St. Cloud, November 1, aged 76, of arteriosclerotic heart disease.

Sullivan Lane Andrews, Lewiston, Maine; Medical School of Maine, Portland, 1901; member of the American Medical Association; past president of the Androscoggin County Medical Society; fellow of the American College of Surgeons; past president of the staff of the Central Maine General Hospital, where he served for many years and where he died November 26, aged 68.

William A. Borin, Bartonville, Ill.; Medical Department of Grant University, Chattanooga, Tenn., 1891; member of the American Medical Association; on the staff of the Methodist Hospital in Peoria; died November 5, aged 79, of cerebral hemorrhage.

Patrick Stephen Brady, Hays, Kan.; Kansas City (Mo.) College of Medicine and Surgery, 1921; member of the American Medical Association; served during World War I; county health officer; on the staff of St. Anthony's Hospital; died November 12, aged 56, of coronary thrombosis.

James Henry Brennan, New Rochelle, N. Y.; Long Island College Hospital, Brooklyn, 1898; on the staff of the New Rochelle Hospital; died November 26, aged 72, of bronchopneumonia.

Henry Edward Briody, Paterson, N. J.; Jefferson Medical College of Philadelphia, 1909; died November 26, aged 65, of coronary occlusion.

Lester Rupert Brown ⊕ Laconia, N. H.; University of Vermont College of Medicine, Burlington, 1899; served as county coroner and as city and county physician; died November 1, aged 71, of coronary thrombosis.

William Bates Buckner, Jacksonville Beach, Fla.; Tulane University of Louisiana School of Medicine, New Orleans, 1935; member of the American Medical Association; first lieutenant, medical reserve corps, U. S. Army, not on active duty; in 1938 elected health commissioner of Dougherty County with headquarters in Albany, Ga.; served a residency at the Florida State Hospital in Chattahooche; died November 11, aged 39, of coronary thrombosis.

Thomas B. Budge, Logan, Utah; Northwestern University Medical School, Chicago, 1905; also a D.D.S.; fellow of the American College of Surgeons; served as associate medical director and head of the eye, ear, nose and throat department, William Budge Memorial Hospital; died November 22, aged 67, of hypertension and cerebral embolism.

Robert Hiram Butler ⊕ Bellefontaine, Ohio; Miami Medical College, Cincinnati, 1906; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; specialist certified by the American Board of Otolaryngology; served during World War I; president of the board of trustees of the Bellefontaine Library; died November 21, aged 64, of injuries received in an automobile accident.

Delia Caldwell, Carbondale, Ill.; Northwestern University Woman's Medical School, Chicago, 1896; formerly practiced in Paducah, Ky., where she served as president of the board of education; at one time vice president of the Kentucky State Medical Association; assistant professor, college physician, emerita, Southern Illinois Normal University; died November 28, aged 85, of nephritis.

Maggie Annettie Campbell, Davenport, Iowa; Hering Medical College, Chicago, 1905; died November 26, aged 86, of bronchopneumonia.

Emanuel Charbonneau, Van Nuys, Calif.; Milwaukee Medical College, 1909; served during World War I; contract surgeon in the U. S. Army; died in the DeWitt General Hospital, Auburn, November 23, aged 63, of bronchopneumonia secondary to carcinoma.

C. Hermann Claus ⊕ Newark, N. J.; Georg August-Universität Medizinische Fakultät, Göttingen, Prussia, Germany, 1919; on the staff of St. Vincent's Hospital, Montclair, where he died November 30, aged 54, of virus pneumonia.

Frank Di Cosola, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; served during World War I; on the staffs of the West Suburban Hospital, Oak Park, and the Mother Cabrini Memorial Hospital; died November 26, aged 57, of coronary occlusion.

Frederick Edward Dargatz ⊕ Kinsley, Kan.; University Medical College of Kansas City, Mo., 1913; served during World War I and as health officer of Edwards County and as director of the health unit of Ardmore, Okla.; died in the Bethel Deaconess Hospital, Newton, November 30, aged 59, of coronary occlusion and cerebral thrombosis.

William Rowland Davies ⊕ Scranton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; past president and secretary of the Lackawanna County Medical Society; served as vice president of the American Physicians' Art Association; member of the House of Delegates of the American Medical Association, 1913-1914; chief surgeon on the staff and member of the board of directors of the West Side Hospital, where he died November 20, aged 70, of coronary thrombosis.

Louis George D'Elia, Jersey City, N. J.; University of Tennessee College of Medicine, Memphis, 1931; died November 25, aged 40, of coronary thrombosis.

Libeus Marshall Denman, Cincinnati; Cincinnati College of Medicine and Surgery, 1876; for many years a medical examiner for the Prudential Life Insurance Company; died November 30, aged 94, of hypertensive heart disease.

Nathan Freeman Doleman ⊕ Tintah, Minn.; Boston University School of Medicine, 1901; served as health officer; on the staff of St. Francis Hospital in Breckenridge; died in Wellington, Kan., November 8, aged 68, of arteriosclerosis.

John Edmund Doran, Atascadero, Calif.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1898; died October 29, aged 73.

Helena Eleanor Enz, Kansas City, Mo.; Kansas City (Mo.) Hahnemann Medical College, 1912; died in the Trinity Lutheran Hospital November 25, aged 59.

John Robert Espey ⊕ Trinidad, Colo.; Jefferson Medical College of Philadelphia, 1889; past president of the Colorado State Medical Society; in 1930 member of the House of Delegates of the American Medical Association; fellow of the American College of Surgeons; served during World War I; major, medical reserve corps, U. S. Army, not on active duty; surgeon at the Mount San Rafael Hospital; died November 24, aged 81, of cerebral hemorrhage.

Maurice Exiner ⊕ Brentwood, N. Y.; University and Bellevue Hospital Medical College, New York, 1911; served during World War I; died November 23, aged 56, of coronary thrombosis.

Walter William Frank, Lombard, Ill.; Bennett Medical College, Chicago, 1910; examining physician for the local draft board, many insurance companies and civil service in the area bounded by Oak Park and the Fox River valley; died in Elmhurst November 23, aged 60.

Powell Beal Gardner ⊕ Guthrie, Okla.; Tulane University of Louisiana School of Medicine, New Orleans, 1915; member of the city council; on the staff of the Cimarron Valley Wesley Hospital; died November 26, aged 56, of coronary thrombosis and ileitis with gangrenous bowel.

Ross Holland Gregory, Fontanelle, Iowa; Kentucky School of Medicine, Louisville, 1893; died November 7, aged 75, of cerebral hemorrhage.

Cesidio Arthur Guarini, Boston; Middlesex College of Medicine and Surgery, Cambridge, 1919; died November 14, aged 53.

John Lewis Haddox, Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1903; died in St. Mary's Hospital November 19, aged 72.

Frederick S. Halm, Sand Springs, Okla.; Kansas City (Mo.) Medical College, 1901; died in the Mercy Hospital, Tulsa, November 12, aged 67.

Paul E. Harper, Dry Ridge, Ky.; University of Louisville School of Medicine, 1935; member of the American Medical Association; interned at St. Elizabeth Hospital in Covington; began active duty in the medical corps, Army of the United States, on Oct. 1, 1942; relieved from active duty Nov. 1, 1944; died October 22, aged 35.

John Ramsey Harrison, Greer, S. C.; University of Tennessee College of Medicine, Memphis, 1923; died in the General Hospital, Greenville, November 22, aged 53, of a fractured skull received in a fall.

Evert Clarence Hartman ⊕ Janesville, Wis.; Northwestern University Medical School, Chicago, 1908; served as president of the Rock County Medical Society; served during World War I; affiliated with the Pember-Nuzum Clinic; member of the staffs of the Pinehurst Sanatorium and the Mercy Hospital, where he died November 30, aged 63, of coronary thrombosis and diverticula of the colon with hemorrhage.

Walter A. Hazelton, Hayward, Wis.; Chicago Homeopathic Medical College, 1892; died November 11, aged 77, of coronary occlusion.

Louis Kaufman Henschel, Huntington, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1906; served overseas during World War I; at one time surgeon in the U. S. Public Health Service Reserve; formerly on the staffs of the New Jersey State Hospital in Greystone Park, Bellevue Hospital and the U. S. Veterans Bureau in New York; died in the Huntington Hospital November 27, aged 66, of cardiovascular renal disease.

Harry Joseph Herzstein ⊕ Pittsburgh; Medico-Chirurgical College of Philadelphia, 1905; died November 26, aged 63, of coronary thrombosis.

Warren La Rue Hogue, Montpelier, Ohio; Michigan College of Medicine and Surgery, Detroit, 1890; died in Alvordton November 17, aged 82, of carcinoma of the lungs.

Spencer Stoddard Howe ⊕ Bellingham, Wash.; Rush Medical College, Chicago, 1903; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; served during World War I; on the staffs of St. Luke's General Hospital and St. Joseph's Hospital, where he died November 8, aged 69, of coronary occlusion.

William Johns ⊕ Wilkinsburg, Pa.; University of Pittsburgh School of Medicine, 1908; died November 19, aged 65.

Joseph Warren Johnson, Los Angeles; University of Arkansas School of Medicine, Little Rock, 1938; member of the American Medical Association; interned at the Los Angeles County Hospital; died November 12, aged 35.

Arthur Proschold Kaelber ⊕ San Francisco; Cooper Medical College, San Francisco, 1903; died recently aged 66.

John Lawrence Keane, Dubuque, Iowa; Creighton University School of Medicine, Omaha, 1926; member of the American Medical Association; died in Dyersville November 3, aged 49, of coronary embolism.

Marie Sarah Ella Kinner, Pittsburgh; Howard University College of Medicine, Washington, D. C., 1919; member of the American Medical Association; died in the Allegheny General Hospital November 30, aged 52, of glomerulonephritis.

Kristine Mann ⊕ New York; Cornell University Medical College, New York, 1913; died in the New York Hospital November 12, aged 71, of carcinoma of the breast.

William Elmer Marsh ⊕ Eldora, Iowa; State University of Iowa College of Medicine, Iowa City, 1891; served as secretary of the Hardin County Medical Society; died November 10, aged 79, of senility.

Hobart Earle Martin ⊕ Clinton, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1901; served two terms as president of the Clinton County Medical Society; member and past president on the staffs of the Jane Lamb Memorial and St. Joseph Mercy hospitals; member of the Iowa State Historical Society; died November 15, aged 67, of coronary thrombosis.

Conley Pinkney McEachern ⊕ Geneva, Ala.; Medical College of Alabama, Mobile, 1896; died November 19, aged 73, of cardiorenal disease and influenza.

John McQuade ⊕ San Francisco; College of Physicians and Surgeons of San Francisco, 1918; on the staff of Mary's Help Hospital; died November 17, aged 68.

Robert Mabry Miller ⊕ Belton, Mo.; St. Louis University School of Medicine, 1905; served three terms on the school board; president of the township board and bank president; died in the Research Hospital, Kansas City, November 9, aged 66, of coronary thrombosis.

Charles Burdette Pillsbury ⊕ Ypsilanti, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1918; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc.; past president of the Washtenaw County Medical Society; on the staffs of the Ypsilanti State Hospital and the Beyer Memorial Hospital, where he died recently, aged 53, of coronary thrombosis.

Victor Strong Randolph ⊕ Phoenix, Ariz.; University of California Medical School, San Francisco, 1923; fellow of the American College of Surgeons; member of the American College of Chest Physicians; on the staffs of the State Welfare Sanatorium, Tempe, Good Samaritan and St. Joseph's hospitals; died November 6, aged 52.

William Isaac Robey, Herndon, Va.; George Washington University School of Medicine, Washington, D. C., 1902; member of the American Medical Association; died in Washington, D. C., October 5, aged 67.

Robert Hunter Scott, Newark, N. J.; Medical College of Virginia, Richmond, 1901; member of the American Medical Association; at one time professor of obstetrics at his alma mater; specialist certified by the American Board of Pediatrics, Inc.; on the staffs of the Babies Hospital-Coit Memorial, Newark City Hospital, Presbyterian Hospital and the Hospital of St. Barnabas and for Women and Children; died November 21, aged 69, of coronary thrombosis.

William Otto Seemann, La Crosse, Wis.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1895; served as a member of the board of health in Eau Claire, where he was on the staff of the Sacred Heart Hospital; a medical officer during World War I; died November 9, aged 75, of arteriosclerosis.

Charles Urban Smith ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1889; also a graduate in pharmacy; emeritus professor of theory and practice of medicine and gastroenterology at the Maryland Medical College of Baltimore; one of the founders of the Franklin Square Hospital; on the staffs of the South Baltimore General Hospital and the Maryland General Hospital, where he died November 12, aged 77.

William Arthur Toomer, Tupelo, Miss.; University of Louisville (Ky.) Medical Department, 1909; member of the American Medical Association; on the staff of the North Mississippi Community Hospital, where he died November 22, aged 61, of coronary thrombosis.

Francis Whittle Upshur ⊕ Richmond, Va.; Medical College of Virginia, Richmond, 1897; served in the medical corps of the U. S. Navy during World War I; first full time venereal disease control officer in Richmond; formerly on the staff of the Eastern State Hospital at Williamsburg; associated with the medical staff of the induction center in Richmond until he became ill; for many years executive surgeon of the Virginia Electric and Power Company; died October 25, aged 70, of carcinoma of the lungs.

Chauncey Albert Walker ⊕ Louisville, Ohio; Ohio Medical University, Columbus, 1898; affiliated with the Mercy and Aultman hospitals in Canton; died October 28, aged 72, of cerebral hemorrhage.

Lawrence W. White, Washington, D. C.; National University Medical Department, Washington, D. C., 1902; formerly assistant to the director of health, Indian Service, Department of the Interior; died in the Washington Sanitarium, Takoma Park, Md., October 16, aged 73, of carcinoma.

Carl August Wickland, Los Angeles; Dunham Medical College, Chicago, 1900; died November 13, aged 84.

Otis Monroe Wiley ⊕ Syracuse, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1902; member of the Syracuse Academy of Medicine; member of the examining board of the U. S. Army; president of the staff of the old Syracuse Homeopathic Hospital, now known as the Syracuse General Hospital, where he was a member of the consulting staff and where he died October 30, aged 77, of lobar pneumonia, partial intestinal obstruction and diverticulitis.

Claiborne Willcox ⊕ Norfolk, Va.; University of Virginia Department of Medicine, Charlottesville, 1915; past president of the Norfolk County Medical Society; medical officer in the medical corps of the U. S. Army abroad during World War I; on the staffs as chief of the pediatric service of the Hospital of St. Vincent de Paul and the Norfolk General Hospital, where he died December 30, aged 55, of coronary thrombosis.

Elvira Willis ⊕ New York; University of Minnesota Medical School, Minneapolis, 1925; attending pediatrician to the New York Infirmary for Women and Children, where she died October 23, aged 47, of carcinoma.

Earl Corson Wood, Columbus, Ohio; Starling Ohio Medical College, Columbus, 1911; member of the Columbus Academy of Medicine; served overseas during World War I; member of the staffs of Mount Carmel and St. Ann's hospitals; died October 14, aged 64, of acute bronchopneumonia and paralysis agitans.

Archibald Lee Yearwood, Fayetteville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1901; died October 28, aged 76.

DIED WHILE IN MILITARY SERVICE

Paul Ashland Brickey ⊕ Colonel, M. C., U. S. Army, St. Louis; St. Louis University School of Medicine, 1918; Army Medical School and the Medical Field Service School in 1926; fellow of the American College of Surgeons; served during World War I; entered the medical corps of the U. S. Army as a first lieutenant on Feb. 13, 1925; promoted through the various ranks to that of colonel in July 1943; held the Bronze Star and Legion of Merit; recently returned from three and one-half years' service in the Pacific war zone; had charge of army hospitals in the Philippines and Honolulu prior to and during World War II; died in St. Louis Sept. 11, 1945, aged 50, of coronary occlusion.

Victor F. Krakes, Keeseville, N. Y.; Long Island College Hospital, Brooklyn, 1928; member of the American Medical Association; had been affiliated with the Champlain Valley and Physicians hospitals, both in Plattsburg; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve in September 1942; died somewhere in the Pacific area July 29, 1945, aged 42, of an intraspinal injury received in a motor vehicle accident.

Samuel Hugh Lumpkin, Amarillo, Texas; Baylor University College of Medicine, Dallas, 1937; interned at the Baylor University Hospital in Dallas; externed at the Dallas Medical and Surgical Clinic in Dallas; on the staffs of the Northwest Texas and St. Anthony's hospitals; member of the junior chamber of commerce; in December 1939 commissioned a first lieutenant in the medical corps and assigned to the medical detachment of the 131st Field Artillery, Texas National Guard; trained at Brownwood with the 36th Division; on Nov. 11, 1941 the 131st Field Artillery was split up and the battalion now known as the "lost battalion" was organized with him as a member; promoted to captain; died in a prisoner of war camp in Burma Aug. 1, 1943, aged 30, of acute dysentery.

Paul Bernard Young ⊕ Wichita, Kan.; University of Kansas School of Medicine, Kansas City, 1935; interned at the Wesley Hospital, where he was a member of the staff; on the staff of the Wichita Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States, on Sept. 1, 1942; promoted to captain; killed in an airplane crash near Lebanon, Tenn., November 10, aged 35.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 26, 1946.

The Social Insurance Plan

Three years after the publication of the Beveridge report on social insurance a national insurance bill embodying the proposals, with a few modifications, has been formulated by the government. This measure is the climax of a socialistic trend in British legislation for many years. It should be remembered that the Beveridge plan was produced by a coalition government in which the conservative party was dominant.

The main weekly benefits under the bill are for sickness and unemployment $5, with $3 for a dependent and $1.50 for the first child; retirement pension $5, widow's allowance $7, maternity allowance $7, attendance allowance $4, maternity grant $16, death grant $80. The cost of benefits is estimated at $1,808,000,000 in 1949, of which about a third will be paid by the exchequer, which will also finance the cost of a family allowance plan, $240,000,000. For the employee the weekly contribution is $1 and for the employer $0.75.

Free medical attendance, which includes every form of treatment—general practitioner, consultant and specialist, domicilary and hospital—is to be provided for all. Details have not yet been published, as the negotiations with representatives of the medical profession are in progress and the decisions of the government remain to be announced. It is unfortunate that these will be made by a socialist government. With the previous coalition government a more balanced consideration of the various interests involved could be expected.

Cancer Research

The annual report of the British Empire Cancer Campaign is based on work done in many laboratories in Britain and the dominions. At the laboratories of the Middlesex Hospital an attempt was made to complete the synthesis of the stilbestrol series. It did not yield any substance of greater activity than diethylstilbestrol. Intensive research is being carried out on the metabolism of synthetic estrogens, especially in relation to cancer of the prostate and breast. At present the use of estrogens in inoperable cancer of the breast has not given conclusive results. A study of the pathology of cancer of the colon at St. Mark's Hospital shows a less malignant tumor to be more common in the colon than in the small intestine. The histology of the primary tumor, the extent of venous spread and the incidence of lymphatic metastases reveal that cancer of the colon is a relatively favorable field for surgery. In cancer of the rectosigmoid region about half the patients who survived a combined excision of the rectum were alive after five years. The best prospects of survival were found in cases without local spread beyond the rectal muscle, without detectable venous spread or lymphatic metastases. The survival rate in these patients was 82 per cent. At the Cambridge University Research Center studies were made by means of serial biopsies of the effects of x-rays and gamma rays. In carcinoma of the cervix anaplastic growths often fail to respond to irradiation. At the Marie Curie Hospital a study of the treatment of uterine cancer with radium was continued. Of 1,410 patients with cancer of the cervix treated over five years ago 36.9 per cent are alive. Radium alone appears to be the method of choice until a combined radium and x-ray technic can be found which will deliver adequate radiation without increasing intestinal morbidity. About 500 cases of cancer of the larynx and pharynx treated at London hospitals have been analyzed. Males predominated over females in a ratio of 10 to 1 except in the ropharynx, where the numbers were nearly equal, and in the id region, where there was a ratio of 3 women to 1 man. Only 19 of 384 persons with cancer of the pharynx survived five years, and 26 of 124 with cancer of the larynx. In early cases laryngofissure gave a survival rate of 91 per cent of the normal expectation of life over a five year period. An investigation was made as to the effect of tobacco and alcohol. Of 307 males 232 were said to smoke in moderation, 64 smoked to excess and 11 were nonsmokers. Of 291 patients 227 used alcohol in moderation and 27 to excess, while 37 were total abstainers.

Treatment of Acute Prolapse of the Uterus

A new treatment of acute prolapse of the uterus has been described in the *British Medical Journal.* It was discovered by accident. A woman aged 31 had been spontaneously delivered of her second child. As there was moderate hemorrhage, Credé's expression of the placenta was performed and the uterus became completely inverted. It was at once replaced in the vagina, but further manipulation was considered inadvisable because of shock. An obstetric surgeon, Mr. J. V. O'Sullivan, saw her seventy minutes after the inversion. She was pale and sweating, with a blood pressure of 80/50 and a pulse rate of 140. On separation of the labia the fundus of the uterus could be seen with the placenta. The treatment of shock included 3 pints of blood. Three hours later the patient had improved greatly and replacement by taxis was attempted with ether anesthesia. This caused rapid deterioration of her condition, so a douche was given preparatory to a later attempt. When the douche was given the tip of the nozzle, guarded by the fingers, was passed toward the posterior fornix. The surgeon's forearm blocked the vaginal orifice, the vagina ballooned out and the uterus promptly returned to its correct position. The signs of shock rapidly disappeared, and uninterrupted recovery followed.

In a second case inversion of the uterus took place in the third stage of labor, and two large tears occurred in an attempt to strip off the placenta. The patient's condition became desperate, with a blood pressure of 70/40. O'Sullivan saw her nine hours after inversion, when she had improved sufficiently to warrant further treatment. Under light open ether anesthesia the uterus was gently delivered through the vagina and the adjacent peritoneal cavity was inspected through the tears. The oviducts and ovaries were found normal. The two tears were repaired. Gentle taxis failed to replace the uterus. In spite of the ruptured uterus, which had been sutured, it was decided to attempt to replace it by hydraulic pressure. The vagina was distended to capacity by a dettol and proflavine douche, which was retained by blocking the outlet with the forearm aided by the assistant's hands. The position of the uterus was corrected, the douche can being held 2 to 3 feet above the vagina. Complete recovery followed.

O'Sullivan recommends immediate replacement of the uterus as soon as inversion occurs, before shock develops, without attempting to remove the placenta. If the patient is in shock, clean the uterus and change the complete inversion to an incomplete by gently replacing it in the vagina, then raise the foot of the bed, place a sterile pad on the vulva and treat for shock. When shock is controlled replace the uterus by hydraulic pressure, as described. Other obstetricians have reported cases in which hydraulic pressure was successful.

A Hospital for Tropical Diseases

In his presidential address to the Royal Society of Tropical Medicine and Hygiene Dr. C. M. Wenyon called attention to the present inadequacy of the facilities in London for the treatment and investigation of tropical diseases. In 1899 Manson founded at the London docks the School of Tropical Medicine and the Hospital for Tropical Diseases. This center functioned successfully until shortly after the war of 1914-1918, when it was removed to a more central position. Later the London School of Hygiene and Tropical Medicine was founded as a gift from the Rockefeller Foundation. For the first time the School of Tropical Medicine was separated from the Hospital for Tropical Diseases. In the recent war the hospital was evacuated and subsequently was so damaged that it had to be abandoned. There is now, Dr. Wenyon pointed out, a great opportunity for establishing in London a Tropical Medical Center with a hospital of 300 beds and all facilities for teaching and research. The reestablishment in London of a Tropical Medical Center would also assist in improving the health of the natives of our colonies, although large sums of money have been designated for this purpose alone.

BELGIUM

(From Our Regular Correspondent)

Feb. 4, 1946.

The New Health Program

Dr. René Sand will publish through the Institute of Sociology an important work dealing with health conditions in Belgium and the necessary improvements. Advancement must include dissemination of practical knowledge of the rules of hygiene, an increase in the general well being and social security and the institution of certain measures such as the drainage of swampy regions, generalization of water distribution and drainage of lands as well as organizations of public health. The author is particularly concerned with the latter, which he believes should constitute an autonomous service independent of political influence. He foresees the creation of a national health service which would have among its assignments hygiene and all the branches of health service and the supervision of the professions and institutions of curative and preventive medicine. This service would include a national health council, regional health services, committees of coordination of communal and provincial health service and committees of coordination of public works and private institutions.

Conditions of Malnutrition in Belgium During the German Occupation (1940-1944)

Professor Brull and his collaborators have published a series of studies on the results of malnutrition in Belgium during the war. The effects on the public health due to privations undergone during the occupation are not all known as yet and it will take years before they can be definitely established. There is, however, a collection of facts which it was advisable to study even during these sad years. Investigation has established the value of whole grain bread; studies on adults and adolescents have shown that there was a general loss of weight and a parallel lowering of arterial tension, but the hemoglobin was maintained at a normal level. Hypoproteinemia, hypocholesteremia and a low phospholipid content of the blood was almost constant in young persons. Valuable conclusions were reached on the pathogenesis of hunger edemas, the condition of the heart and circulation and nitrogen metabolism in malnutrition.

Special Hospital for Poliomyelitis

The reappearance of infantile paralysis resulted in considerable confusion among the people. The information released by the Ministry of Public Health on this subject was of an alarming character. A special hospital was immediately designated by the Ministry of Public Health for the diagnosis and treatment of infantile paralysis. It must be recognized that by doing so the authorities evidenced unprecedented promptness. Dr. Leon Laruelle, president of the National League against Poliomyelitis and director of the Neurologic Center of Brussels, has specialized in the study of infantile paralysis. He was appointed to direct the activities required at such a time. The rapid shipment of four iron lungs was at once assured, thanks to the collaboration of the United States of America.

Dangers of Artificial Respiration

In an article in the *Scalpel* Hustin directs attention to the dangers in certain procedures of artificial respiration, which by various mechanisms exert a harmful influence on the circulation of the blood. An apparatus which utilizes the insufflation of air into the lungs under pressure hinders more or less the entrance of blood into the thorax and interrupts the venous circulation. The author has observed in a case of syncope in the course of a spinal anesthesia that the hemorrhage of the wound stopped at the time the respirator was put into action, and this effect was produced more rapidly because the blood pressure had previously been much below normal. The supine position of the patient in the apparatus of Paris and the strap which surrounds the lower part of the thorax greatly disturb the circulation in the abdomen and the lower extremities; the inclined plane on which the thorax rests only accentuates the epigastric compression, as may the obesity of the subject. Thus, to the inconveniences of a purely respiratory nature pointed out by André and Boxus with the apparatus of Paris there are added other disadvantages of this apparatus for the circulation. In estimating the value of a method of artificial respiration, it is necessary to consider not only the entrance and exit of the pulmonary air but also whether the intrathoracic circulation is hindered by the means employed to insure pulmonary ventilation.

MOSCOW

(From Our Regular Correspondent)

Jan. 1, 1946.

Naval Medicine

During the recent war the Soviet navy was free from epidemics, although in preceding wars the loss of life from epidemics was higher than from combat. The mortality of seamen with various infectious diseases did not exceed prewar figures. These good results were due to various measures of control. Reinforcements for navy crews were temporarily quarantined from the regular personnel. Seamen returning from holidays, hospitals or leaves entered sanitary control stations for medical examination. At naval bases sanitary epidemiologic laboratories were established to inspect ships and coast troops, drinking water and food. They acted immediately to control infectious diseases. Antiepidemic measures were especially difficult to maintain on small war ships, which rapidly changed location and were often detached from bases for long periods. Mobile disinfection chambers, x-ray units, bath trains and laundry trains were utilized in the besieged seaports of Odessa, Leningrad, Sebastopol and certain arctic bases.

Battleships and cruisers carried experienced surgeons and adequate equipment so that surgical work could be performed on shipboard. But for personnel of smaller warships specialized medical and surgical work was performed in naval hospitals.

In order to provide medical care for the navy, spread over immense distances, "maneuver groups of strengthening" such as antiepidemic, surgical and transport groups were organized. A special system of closed evacuatory treatment provided for evacuation and complete medical service in naval hospitals.

As the result of treatment in the navy for the first forty-five months of the war 84.9 per cent of wounded and 96.4 per cent of diseased recovered and returned to service. These figures result from the excellent treatment and the work of numerous specialists, among them Prof. Julian Janelidze, the hero of Socialist Labor, and Professors Lisitzyn, Melnikov, Miasnikov, Púnin and Yassinovsky. During the war an institution of flag specialists was organized. The members of this medical staff took direct part in the medical practice of the navy.

Much attention was given to the study of professional injuries in the navy, especially for divers and crews of cutters, submarines and the navy air fleet. Recommendations were made for improving hydroacoustics, air regeneration, rational food supply and stimulation of the nervous system. The conditions were especially hard in the navy of the North Sea. Medical officers of submarines studied them directly while on ship board. Major Gusinsky of the medical corps worked out air regeneration tables for different types of submarines. He participated in eight campaigns.

The scientific and research medical work of the navy is planned by the scientific medical council of the medical sanitary administration of the navy and its sections. During the war eighteen volumes of transactions of the scientific medical council were published with about three hundred articles on different questions of naval medicine.

Special journals on naval medicine are issued, including the *Naval Military Surgeon, Military Medical Navy Transactions* and *Generalization of War Experience.* A great share of the credit for this work belongs to the director of the Navy Scientific Medical Institute, Professor Bykov, member of the Academy of Medical Sciences of the U. S. S. R., and to Professors Koiransky, Yakovenko, Podkopaiev and Frenkel as well as to the staff of the Naval Military Medical Academy.

BRAZIL

(From Our Regular Correspondent)

Rio de Janeiro, Jan. 5, 1946.

BCG Immunization of the Allergic Healthy Adult

Dr. Arlindo de Assis, head of the tuberculosis laboratory of the Ataulpho de Paiva Foundation, is conducting a series of experiments to ascertain the mechanism of BCG immunization in man. In a paper recently published he reports the effect, on the human organism allergic to tuberculin, of the prolonged use of massive doses of the BCG immunizing material. Two volunteers previously tested with old tuberculin reacted respectively to Pirquet's test and to Mantoux's test (1:1,000). X-ray films in 1 case showed residual lesions of the hilus lymph nodes as well as of the right apex (Simon's nodules). The second volunteer presented only residual x-ray lesions of hilus lymph nodes. Both of them began then to ingest daily increasing doses of BCG, starting from 4.5 mg. and reaching progressively 10, 15 and finally 30 mg. The daily use of BCG was continued for six months in 1 case and for five in the other, totaling respectively 2.095 and 2.358 Gm. In both cases the general health condition was quite normal during the immunization period and after it was discontinued. The leukocyte counts evidenced a very slight increase of lymphocytes. Blood sedimentation tests remained unaffected in 1 case and showed inconclusive variations in the second. X-ray films were taken both during the immunization period and four to six months after the BCG ingestion had ceased. Pathologic changes could not be discerned in the original pulmonary findings of the cases. Tuberculin tests were periodically performed, evidencing a slight degree of desensitization of the skin specific allergy as the result of the daily absorption of BCG by the oral route. A gradual increase of tuberculin hypersensitiveness was again observed some time after BCG was discontinued.

Occurrence of Murine Virus of Choriomeningitis

In the examination of material from gray mice captured in Salvador, state of Bahia, Dr. Fulvio J. Alice has found a filtrable virus similar to the virus of choriomeningitis. In a preliminary paper Dr. Alice reported that a virus filtrable in Berkefeld W filters has been isolated from Bahia gray mice through peritoneal and intracerebral inoculation of guinea pigs. It has been possible to infect albino rats and mice, but rabbits and cats apparently are not susceptible. The blood serum of guinea pigs which recovered from the infection produced by inoculation of the strain under study contained antibodies capable of neutralizing the strain WE of the choriomeningitis virus. The inoculation of the WE strain could also neutralize, but only partially, the Bahia strain. Guinea pigs which recovered from the infection produced by inoculation of the SP4 strain were resistant to the reinoculation of the standard virus, which was lethal for apparently normal guinea pigs used as a control. In a new paper Dr. Alice confirms and enlarges on his previous findings. The virus isolated from gray mice on simultaneous intracranial and intraperitoneal inoculations into guinea pigs is filtrable in Berkefeld V, N and W filters. Guinea pig brain, liver, spleen and blood are infective to other guinea pigs through the cerebral, peritoneal, muscular, subcutaneous and intradermic routes. Rabbits, cats, dogs, pigeons and chickens apparently are not susceptible to cranial or muscular inoculation. The presence of the virus in chicken tissues nine days after the cranial inoculation was demonstrated, but tests to verify the maximum persistence of the virus were not performed. It was not possible to demonstrate the virus in guinea pigs and mice of the laboratory colony. Guinea pigs or mice resistant to an infective initial inoculation were not found. Fever and other symptoms developed in almost all of the inoculated animals. Cross immunity and neutralization tests proved that the SP4 strain is serologically similar or closely related to the standard strain of lymphocytic choriomeningitis virus (WE strain, Rivers-Scott).

Personal

Dr. O. de Almeida e Silva has been appointed director of the Department of Hospitals of the city of Rio de Janeiro, succeeding Dr. J. Paes de Carvalho.

Dr. Joaquim Motta has been appointed director of the Department of Public Health of this city, succeeding Dr. R. de Almeida Magalhães.

Dr. William Coolidge, the scientist who introduced improvements in x-ray tubes, recently spent some time in Rio de Janeiro and São Paulo, where he was honored by the National Academy of Medicine, by the Brazilian Academy of Sciences, by the Brazilian Society of Radiology and by the universities of the two cities. Dr. Coolidge delivered several lectures on his research in radiology.

The Society of Forensic Medicine and Criminology of São Paulo awarded the Oscar Freire medal to Dr. Horacio M. Canellas, to Dr. José T. Bittencourt and to Dr. Sylvio Marone for remarkable scientific papers in the field of forensic medicine during 1945.

Deaths

Col. Carlos Eugenio Guimarães of the Brazilian army medical corps, retired, died recently at the age of 64. Dr. Guimarães was a leading surgeon, founder of the Brazilian Red Cross and its president for several years.

Marriages

Edward G. Davis Jr., Richmond, Va., to Miss Doris Davenport of Hampton in Corpus Christi, Texas, September 22.

John Pope Collins to Miss Dorothy Jean Watkins, both of Durham, N. C., at Zanesville, Ohio, January 1.

Joseph Lindsay Cook, Graham, N. C., to Miss Jean Foster Bailey of Greenwood, S. C., December 15.

Gerald Anderson Fostvedt, Harrison, N. J., to Dr. Lucille Marian Radke of Minneapolis, October 20.

Walter W. Hamburger Jr., Chicago, to Miss Ruth C. Kraft of Hackensack, N. J., January 7.

Irwin I. Lubowe, New York, to Miss Ruth C. Katz of Union City, N. J., in Boston, December 22.

Alfred B. Stich to Miss Muriel J. Edelstein, both of Washington, D. C., December 31.

Henry M. Stern to Miss Carol Goodman, both of Wilmington, N. C., January 18.

Leo Wilson to Miss Hilda Loveman, both of New York, December 29.

Correspondence

REACTION FOLLOWING BRONCHOGRAPHY WITH IODIZED OIL

To the Editor:—My comment on the article "Reaction Following Bronchography with Iodized Oil" by Capt. George S. Mahon (The Journal, January 26, p. 194) is prompted by my belief that he has misinterpreted the findings at hand. The proper interpretation of the accident would have prevented this death and should prevent further fatalities.

In his discussion Dr. Mahon correctly disregards the possibility of cocaine poisoning and of allergic shock from cocaine sensitivity because of the time elapsed between the administration of the drug and the onset of the symptoms. The same reasoning should also pertain to the question of a localized lipiodol sensitivity in the bronchi or of allergic shock from the instillation of lipiodol: an allergic reaction severe enough to be fatal would have taken place immediately or shortly after the instillation of the lipiodol. It would have been characterized by generalized edema in most areas of the system as well as in the shock organ itself (Waldbott, G. L.: Allergic Shock: III. From Substances Other Than Pollen and Serum, *Ann. Int. Med.* 7:1308 [April] 1934).

Since the pathologic condition described was typical of death from allergic asthma and since death was due to obstruction of the bronchi by mucous plugs, the preexisting asthma and bronchiectasis should be held solely responsible. There was no indication whatever of "allergic sensitivity to some constituent of lipiodol, probably the iodine"!

In patients displaying a great deal of mucus in the bronchial tree, injections of such additional viscous material as lipiodol into the bronchi not infrequently induce obstruction of the small bronchi followed by atelectasis of lung tissue and pneumonitis or—as in this case—massive collapse of a lung when a main bronchus is involved. It is the result of too much "crowding" in the bronchi.

Two lessons may be learned from the experience of Dr. Mahon's case:

1. If an asthmatic patient has much mucus in the bronchial tree, a lipiodol injection should either be avoided or preceded by bronchoscopic aspiration of mucus.

2. When an accident of this kind occurs, the first measure should be the immediate insertion of a bronchoscope into the bronchi and the aspiration of the obstructing material. This was first proposed by me (Emergency Treatment in Asthma, The Journal, April 30, 1938, p. 1423) as *the* life-saving measure in asthma of extreme severity. In my own experience this has materially reduced the incidence of asthmatic death, regardless of whether the attack originated spontaneously or through the administration of some drug.

George L. Waldbott, M.D., Detroit.

HOSPITAL STAFF MEETING

To the Editor:—The type of medical staff meeting that I describe here has proved of interest to other groups of doctors who have learned about it. After two years of use at Geneva Community Hospital it has proved to be successful beyond expectations. Although no originality is claimed for the idea behind the meeting, I conceived it for the first time for use at Geneva in January 1945.

A subject is selected from a group suggested by the staff, biliary tract disease, for example. This is divided into anatomy of the biliary tract, congenital deviations, etiology and pathology of disorders, medical and surgical diseases with diagnosis and management, one subject being assigned to each staff man until the entire subject is covered. Time is limited to ten minutes. After completion of presentations, questions are accepted from the floor for answering. They are listed by the secretary. Those left unanswered or those provocative of controversy are compiled.

An authority on the subject (most of our guests have been members of the faculties of medical schools in Chicago) is invited to be guest at a subsequent meeting. The questions are sent to him a week in advance. He comes prepared to offer answers or enter into the controversy. Much information is derived by all.

Illness has been about the only reason that has kept staff members or guests away from meetings.

The pleasure of the staff and the amazing attendance records prompt this report, with the idea that other hospitals might like it.

James P. Campbell, M.D., Wheaton, Ill.

OPPORTUNITIES FOR PRACTICE IN CHINA

To the Editor:—I should like, as a medical missionary in China for thirty-eight years—soon to go back—to reinforce the letter of Drs. Hume and Forman published in The Journal, February 2. There are wonderful opportunities in China and the other mission fields for young men and women to put their lives where they will do most good and help to bring in the era of lasting peace. The life is stimulating, developing and deeply rewarding. Especially is this true of medical missionaries. After study of the language, which in the case of Chinese is fascinating in my opinion, the doctor, man or woman, is thrown into a busy hospital work with unlimited opportunities of development along any special line. Especially rewarding is the working with people of another race, getting to know and understand them and helping them to a more abundant life. It isn't always easy—one has to be a pioneer and build, improvise and perfect. But such a life should appeal to those who have a deep faith in God and in men and who want to make their lives count in this troubled world.

Harry B. Taylor, M.D., Anking, China.

MEDICAL NEEDS IN YUGOSLAVIA

To the Editor:—I have been informed that over a month ago the chief delegate of the Yugoslav Red Cross, Lieut. Col. Robert Neubauer, called on you and gave you a true picture about the health conditions existing in Yugoslavia today. According to authentic information there are over a million children afflicted with pulmonary tuberculosis, among whom are more than 12,000 cases of bone tuberculosis. The present relief campaign was organized by Americans under the honorary chairmanship of Mrs. Eleanor Roosevelt especially to ward off the starvation and famine of Yugoslav children. I wish also to inform you that there are more than six million Yugoslavs completely exhausted, undernourished and facing starvation because of widespread devastation and complete destruction of the country by Nazi-fascist invaders.

I am writing to you as an American citizen of Yugoslav descent (from Ljubljana-Slovenia) who knows intimately the country from historical, ethnical, economopolitical and linguistic-cultural points of view. It is imperative for our government to get correct, true and unbiased information about the new Yugoslav Republic if we want to avoid disturbing political storms that may confront us in the near future. A few days ago I received a letter from Dr. Božidar Lavrič, professor of surgery at Ljubljana University, who wrote:

"Our medical institutes need laboratory equipment of all kinds, and surgical instruments used in brain and neurosurgery and modern oral surgery. At present the most urgent need exists for microscopes, analytic apparatus, cameras and projection apparatus employed in teaching the students We would be extremely grateful if we could get a single apparatus for anesthesia with cyclopropane or nitrous oxide In fact, our young medical faculty is the weakest in technical laboratory equipment, we still have enough of our own sanitary material, cotton and gauze and we are getting it also from UNRRA We tried to obtain medical literature from America but we were unsuccessful We need urgently special medical reviews and medical books that will enable us to replace those we lost during five years of occupation and war '

From the foregoing translation of a part of the letter of Dr Božidar Lavric you can easily see how thorough the Nazi-fascist invaders were in destroying universities, libraries and laboratories

RUDOLPH P ZALETEL, M D,
7105 Stony Island Avenue,
Chicago

RESTLESS LEGS

To the Editor —The editorial on "Restless Legs" (THE JOURNAL, Nov 24, 1945, p 875) interested us deeply You refer to a syndrome described by Axel Ekbom in which the most characteristic signs are paresthesias over the inner aspect of the legs which develop only when the legs are still and induce the patient to move the legs to get relief The same syndrome was described by us in the *Confinia Neurologica* **3**:*110, 1940* under the heading "Familiares Auftreten von Pruritus, Urtikaria und parasthetischer Hyperkinese der unteren Extremitaten" We assumed that this syndrome may be due to a heredodegeneration of the nervous system Since then we have observed another family instance in which the patient described his disease in a graphic way as *"fidgets"*

J C MUSSIO FOURNIER, M D
F RAWAK, M D
Institute de Endocrinology,
Montevideo

Bureau of Investigation

SOME MISCELLANEOUS MEDICAL FRAUDS

A Variety of Schemes Debarred from the Mails

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL Following are abstracts of two such orders

Cal-Indo (or Cal-Inda) Company —These were trade styles for a Los Angeles concern *which sold* through the mails something known as 'Calindo [or Calinda] Tablets" The promoters represented that this was a competent, effective and curative treatment for constipation high blood pressure, liver ailments, diabetes, neuritis, arthritis, rheumatism, intestinal disorders and so called heart trouble, regardless of the age and physical condition of the user, *that persons taking these products* would receive benefits identical with, or similar to, those claimed by other *users in* testimonials appearing in the concern's sales literature, that the tablets contain minerals required by the system in the normal functioning of the human body, and that the continued use of the *preparation*, until all symptoms have disappeared, will restore the liver, kidneys, intestines, pancreas and spleen to a state of normal function The *Post Office Department* declared these representations to be false and fraudulent, and cited the concern to show cause why it should not be debarred from the mails One L G Dieker, designated as president of the firm, filed a written reply, denying any violation of the postal laws and any representation that his tablets were an effective treatment for the diseases *mentioned Nevertheless the Post* Office Department was able to cite many testimonials to the effect that the tablets *had been effective* for diabetes, neuritis, arthritis, asthma, high blood pressure, heart and liver troubles and intestinal disorders At the hearing of the case a chemist of the Food and Drug Administration testified for the government that the *Calindo (Calinda) Tablets (pink* coated) contained belladonna ginger, podophyllin and cascarin He testified further that the accompanying brown coated tablets (exact name not reported) contained emodin bearing material licorice, leptandra, podophyllin ginger, possibly anise and acid insoluble material used as a *binder, which was probably* talc A Senior Medical *Officer* of the Food and Drug Administration testified for the government that, among other things the total action of the drugs mentioned would be *that* of any irritant laxative useful only as a means of relieving occasional or temporary constipation, that, scientifically considered, they would not be a *proper treatment* or cure for chronic constipation, and that certain types of this disorder would probably be made worse by this treatment He further declared that the tablets contained no significant amount of minerals and therefore would be of no value in treating any condition resulting from a mineral deficiency Again he showed that there is no *scientific* basis *for* a statement or belief that high blood pressure is in any way caused by constipation or relieved by laxative drugs His testimony included a discussion of the *causes and proper treatment of diabetes*, rheumatism and heart and liver disorders, and showed the futility and even danger in treating such conditions with laxatives As a result of the hearing, L G Dieker, the Cal Indo Company and the Cal Inda Company were on Dec 7, 1944, denied the use of the mails In this connection *it is worth noting that in the Calindo literature there was* the claim "no man will ever know 'What Strange Secret' nature has locked in these wonderful herbs from the far away jungle country" This recalls the fact that in 1931 and for a few years afterward something called "Duryana' and claimed to be based on "jungle fruits" was *being advertised by an L G Dieker of the Duryana Company*, 402 Bradbury Building Los Angeles Earlier in 1931 it was reported that a "Dr Dieker' having the same Los Angeles building and room address as above was agent for a "fruit gland food' known as "Lukutate" No record could be found of Dieker as a Doctor of Medicine or as any *kind of* 'drugless healer" Lukutate, a nostrum from Germany, was dealt with at some length in this department of The Journal Jan 25 1930 page 281 A later name for it was "Dur Inda" a *discussion of which appeared in The Journal April 23, 1932*, page *1493*

Lee Products *—Under this trade style* one Milton L Lieberman sold some fifteen nostrums by mail from his Chicago residence He was said to claim to be a registered pharmacist and to have his own laboratory 'modestly equipped," at his home Because of questionable claims made for three of his products "Anti Gray Hair Vitamin" "Lee s Rheumatic Pills' and "Lee's Special Pills" he was notified *by* the Post Office Department to show cause at a hearing in Washington why his business should not be debarred from the mails as a fraud Among these claims were that the Anti Gray Hair Vitamin, when used as directed, would restore the 'natural youthful color" to gray hair of any person, regardless of age or cause of discoloration, and that such restoration would be accomplished "within 24 to 50 days", that Lee s Rheumatic Pills when taken as directed would *provide* the "desired *relief*' from 'the tortures of pain" incidental to arthritis, neuritis and sciatica, regardless of the cause or duration thereof or the age or condition of the user, *and that Lee's Special Pills*, when used *according to directions*, would give "sure" relief to persons suffering from kidney and bladder ailments Although Lee's attorney asked *the* Post Office *Department for* certain extensions of time, and finally for a disposition of the case by "agreement or stipulation" which was denied neither he nor his client appeared at the hearing in Washington On that occasion a qualified chemist testified for the government that his analysis did not disagree with the *statement of ingredients given* on the label of Anti Gray Hair Vitamin namely that each tablet contained 10 000 micrograms of calcium pantothenate and 333 units of vitamin B1, plus B complex from yeast, that Lee s Rheumatic Pills are actually gelatin capsules each containing a white powder in which were found 7 2 grains of sodium salicylate, 1 13 *grams of* aspirin and 4 5 grains of sodium bicarbonate, whereas Lee's Special Pills were blue coated tablets consisting of potassium nitrate, cascara juniper berries and buchu A Senior Medical Officer of the Food and Drug Administration testified for the government that the chief cause of gray hair is aging processes though it may be caused by debilitating, systemic diseases glandular disorders, heredity or nerve injury resulting from accidents In some cases the grayness may be only temporary and the original color may return especially in cases of younger persons whose health is restored after some sudden or acute condition which caused the gray hair The witness further testified that there is no scientific medical evidence to show that calcium pantothenate, either separately or in combination with the other ingredients of the mixture in question will restore natural color to gray hair He cited the results of a scientific test in which he had participated and in which 27 persons with gray hair working in the same office were given daily dosage of 20 milligrams of calcium pantothenate for a period of six months at the end of which time every one of them still had gray hair Discussing Lee's Rheumatic Pills the witness stated that rheumatism may arise *from many causes* and *take various forms* and that since no single treatment would be adapted to all of these the Lee *nostrum* would be an unscientific treatment for them Lee's Special Pills he showed *to* be equally ineffective in their own field that of kidney and bladder disorders He declared that many serious diseases of these organs, and other *ailments mistaken for them, cannot be cured* by any home treatment, but rather, require scientific study and handling The evidence presented was considered to confirm the charge that of obtaining money through the mails by means of false and fraudulent pretenses, representations and promises and on Dec 1, 1944, a fraud order was issued to debar the Lee *Products from further use of the* mails Meantime, another government agency, the Federal Trade Commission, also had objected to certain unwarranted claims made for "Lee's Periodic Pills" and "Lee's Periodic Capsules" put out for 'feminine hygiene" by Milton L Lieberman trading as Lee Products and as Chemi Culture Laboratories As a *result, the* Commission announced on Dec 5, 1943 that Lieberman had entered into a stipulation *with* the Commission, agreeing to discontinue these misrepresentations The case was briefly reviewed in this department of The Journal Sept 16 *1944* page 189 A later complaint brought by the Commission in September 1944 against Lieberman and his trade *names and involving further* unwarranted advertising representations for his "female weakness' nostrums *has not yet been concluded*

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Drunkenness: Results of Chemical Test of Blood Admissible in Evidence on Question of Intoxication.—The plaintiff sued to recover damages for the death of her husband, which was alleged to have resulted from the defendant's negligent operation of a motor vehicle. From a judgment for the plaintiff, the defendant appealed to the Supreme Court of Oregon.

The defendant was a soldier stationed at Camp White, Oregon. At the trial Captain Porro, a medical officer at the camp hospital, was permitted to testify that he had made a chemical test of the defendant's blood after the accident and that it disclosed a sufficient quantity of alcohol to indicate intoxication. The defendant objected to the admission of such testimony on the ground that the presence of alcohol in the blood stream is no evidence of intoxication. We think, said the court, that, when intoxication is the issue, testimony by a qualified witness as to the result of a blood test has probative value and should be received. Continuing, the court said that the subject of blood and urine tests in this connection had been discussed in numerous published scientific treatises and that there is ample support for the following statement from the exhaustive article "The Medico-Legal Aspects of the Blood Test to Determine Intoxication" by Ladd and Gibson, 24 Iowa L. Rev. 190:

> The blood and urine test to determine intoxication has reached a stage of scientific development and reliability where it may serve a most useful purpose in assisting courts and juries to discover the truth in cases in which intoxication is an issue.

Another objection to the Captain's evidence was that the test offends against the rule that a witness will not be permitted to express an opinion on the merits of a case. The Supreme Court said that an expert witness, testifying as to the result of a blood test, may say that a given quantity of alcohol found in the blood of a particular individual indicates intoxication in a greater or less degree, but, since his testimony is based solely on the result of the blood test, he may not, of course, give his opinion that the individual in question was in fact intoxicated. In this particular, the testimony of Captain Porro was not objectionable. Furthermore, the competency of such testimony is not at all impaired because some persons yield more readily than others to the deleterious effects of intoxicants. That fact, concluded the court, may lessen the weight of the testimony, but it will not exclude it.

The judgment in favor of the plaintiff was reversed, however, because of the failure of the evidence to show that the blood which Captain Porro examined was in fact the blood of the defendant.—*Natwick v. Moyer et ux 163 P. (2d) 936 (Ore., 1945).*

Medical Practice Acts: Osteopathic School Granted Discretion in Admission Requirements.—Plaintiff, in the name of the People of the State of Illinois, filed a mandamus action to compel the defendant, Department of Registration and Education, to permit her to take an examination for a license to practice osteopathy. From a judgment denying the requested relief, the plaintiff appealed to the appellate court of Illinois.

Section 5, paragraph 2(b) of the medical practice act provides, in reference to the educational standards set up for osteopaths and other limited practitioners,

> . . . that such . . . college . . . at the time of his graduation required as a prerequisite to admission thereto a *four years' course* of instruction in a high school, and as a prerequisite to graduation therefrom a *four years' course* of instruction . . . of not less than *eight* months each, . . . the time elapsing between the beginning of the first year and ending of the fourth year . . . having been not less than thirty-six (36) months, . . . such high school and such . . . college . . . having been reputable and in good standing in the judgment of the department.

The defendant denied that the high school which the plaintiff attended was in good standing.

The plaintiff testified that, in order to qualify for admission to the Chicago College of Osteopathy, from which she graduated in June 1942, she had studied in a state chartered adult high school and under private tutelage to gain fifteen high school credits. In 1937 she took the University of Illinois examination in high school subjects and was admitted to the college in September of that year. When admitted, the results of the examination on only 12½ credits were known and to that extent she passed. Later she learned that she had passed only 2 of the remaining 2½ credits, having failed in physiography. When she was admitted to the college, the college assumed that she had passed the 15 credits, but, on learning of the final results of the examination, it consented to her continued study on condition that she make up the deficiency by examination. She failed in the physiography examination three times and then, with the consent of the college, abandoned that subject, studied organic chemistry at Lewis Institute in Chicago, passed the examination in that subject and subsequently graduated from the college.

In the oral argument before the appellate court, the defendant admitted that four years of high school was not required; it contended however that, since the plaintiff entered the college with less than 15 credits, the equivalent of a four years' high school, she was not qualified to take the examination for a license to practice osteopathy. The question, said the court, is whether the plaintiff should be disqualified because, when admitted to the college, she was deficient in credits.

The court noted that the medical practice act does not require 15 credits. There is no requirement under its provisions that plaintiff must have had a high school education. The requirement is that the college, at the time of the plaintiff's graduation, should require, as a prerequisite to admission, "a four years' course." It is a matter of common knowledge, said the court, that colleges and universities exercise a certain discretion in their admission requirements. Moreover, the tendency in judging educational attainments is strongly toward considerations of ability rather than records or credits. We believe, continued the court, that the discretion of the college extended to permitting the plaintiff to continue study on the condition that she make up ½ credit. Under the circumstances of this case, the court concluded, we think a grave injustice will be done if plaintiff is denied the writ of mandamus. Accordingly the judgment of the trial court was reversed and the cause was remanded with directions to enter a judgment for the plaintiff.—*People ex rel. Harmon v. Thompson, Director of Registration and Education, 63 N. E. (2d) 624 (Ill., 1945).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in The Journal, Feb. 23, page 531.

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: Part III. Various Centers, March. Exec. Sec., Mr. E. S. Elwood, 225 S. Fifteenth St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: *Oral.* New York, Oct. 9-14. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York 22.

American Board of Internal Medicine: *Oral.* Philadelphia, May 9-11. Final date for filing application is March 15. San Francisco, June 27-29. Final date for filing application is April 15. Asst. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

American Board of Ophthalmology: Chicago, Oct. 9-12. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

American Board of Orthopedic Surgery: *Part I.* New Orleans, May 3-4, San Francisco and St. Louis, May 10-11 and Philadelphia, May 17-18. Final date for filing application is March 10. Sec., Dr. G. A. Caldwell, 3503 Prytania St., New Orleans 15.

American Board of Otolaryngology: Chicago, May 22-25. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

American Board of Pediatrics: *Written.* Locally, March 22. *Oral.* Cleveland, April 27-28 and San Francisco, July 1-5. Sec., Dr. Lee F. Hill, 3309 Forest Ave., Des Moines, Ia.

American Board of Radiology: Chicago, Nov. 27 to Dec. 1. Final date for filing application is Sept. 1. Sec., Dr. B. R. Kirklin, Mayo Clinic, Rochester, Minn.

American Board of Surgery: *Written. Part I.* Various centers, October. Final date for filing application is July 1. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia 2.

American Board of Urology: *Oral.* Chicago, February 1947. Final date for filing application is Nov. 15. Sec., Dr Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

POSTGRADUATE CONTINUATION COURSES FOR VETERAN AND CIVILIAN PHYSICIANS

(Supplementary to listing published Dec. 8, 1945, Vol. 129, pp. 1046-1059).

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	ALLERGY		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Skin and Allergy	Arranged, 3 days	$20
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	*Personal Course in Allergy and Related Conditions*	*April 3-June 5, 1946, once weekly*	125
University of Michigan Medical School, 1313 East Ann St., Ann Arbor, Mich.	Allergy	May 13-18, 1946	Not stated
	ANATOMY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Surgical Anatomy on the Cadaver	April 3, 1946, 10 weeks once weekly	125
	ANESTHESIOLOGY		
Ohio State University College of Medicine, 11th and Neil Aves., Columbus, Ohio At: University Hospital	*Anesthesiology*	*Arranged, at least 3 months*	
	ARTHRITIS		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Arthritides including Rheumatic Fever	Arranged, 3 days	20
	CHEST DISEASES		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver At National Jewish Hospital	Diseases of the Chest	Arranged, 3 days	20
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Technic of Physical Examination and Diagnosis of Chest	April 5, 1946, 8 weeks once weekly	65
New York *State Dept. of Health, Alfred E. Smith State Office* Bldg., Albany, N. Y. At Various state tuberculosis hospitals	Course of *Instruction in Pul*monary Disease and Tuberculosis	Arranged, 3 to 12 months	
	CARDIOVASCULAR DISEASE		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Cardiovascular Diseases (Including Peripheral Vascular Diseases)	Arranged, 4 days	25
	DIABETES		
Harvard University Medical School Courses for Graduates, 25 Shattuck St., Boston	Diabetes Mellitus in Relation to General Medicine	Scheduled April 1-3, 1946, postponed to April 22-24, 1946	20
	ENDOCRINOLOGY		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	*Endocrine Diseases*	*Arranged, 2 days*	15
	FRACTURES		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Special Course in Fractures	March 20, 1946, 10 weeks once weekly	125
	GASTROENTEROLOGY		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Gastro Intestinal Diseases	Arranged, 3 days	20
University of Michigan Medical School, 1313 East Ann St., Ann Arbor, Mich.	Gastroenterology	June 17-21, 1946	Not stated
	HEMATOLOGY		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Blood Diseases	Arranged, 3 days	20
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Course in Hematology	April 3, 1946, 10 weeks once weekly	100
University of Michigan Medical School, 1313 East Ann St., Ann Arbor, Mich.	Diseases of the Blood	June 3-8, 1946	Not stated
	INDUSTRIAL HEALTH		
Wayne University School of Occupational *Health, 1516* St. Antoine St., Detroit	*Occupational Health and* Medicine	March 4, 1946, 12 weeks (postponed because of labor conditions)	Not stated
	MEDICINE, GENERAL		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Course in Heart Disease and Electrocardiography	April 5-June 19, 1946, 10 weeks once weekly	125
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City, Kan.	Internal Medicine, Psychiatry, Dermatology	March 25-29, 1946	Not stated
Kentucky Medical Association, Louisville, Ky. At Louisville General Hospital	Refresher Course in Internal Medicine	6 weeks, given continuously	None
University of Maryland School of Medicine, Lombard and Green Sts., Baltimore	General Medicine, including Medicine, Surgery, Pediatrics, Obstetrics and Gynecology	April 15-June 8, 1946, 8 weeks	100
Boston University School of Medicine, 80 E. Concord St., Boston	Internal Medicine	March 15, 1946, *6 months*	375
Beth Israel Hospital, *330 Brookline* Ave., Boston	Postgraduate Course in Internal Medicine	1 academic year	Not stated

Institution	Title of Course	Schedule of Course	Registration Fee and/or Tuition
	MEDICINE, GENERAL—Continued		
St. Louis University School of Medicine, 1402 S. Grand Blvd., St. Louis	Aspects of the Medical and Surgical Specialties in General practice	May 13-June 8, 1946	$62.50 G. I. Bill of Rights
	General Refresher Courses in Medicine and Surgery	March 15-May 11, 1946	Each course 125
Cornell University Medical College, 1300 York Ave., New York At: Bellevue Hospital	Graduate Course in Internal Medicine	April 1, 1946	6 months 250 2 weeks 50
University of Pittsburgh School of Medicine, Bigelow Blvd., Pittsburgh	Refresher Course for General Practitioners	8 weeks tentatively scheduled for April 1, 1946	150
	NEUROLOGY and PSYCHIATRY		
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Neurology for the General Practitioner	April 3, 1946, 10 weeks once weekly	80
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Neurology and Psychiatry	Arranged, 3 days	20
	OBSTETRICS and GYNECOLOGY		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Gynecology	Arranged, 1½ days	15
	Obstetrics	Arranged, 2½ days	20
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Practical and Didactic Course in Office Gynecology	March 13, May 8, July 10, Aug. 28, Oct. 9, Nov. 20, 4 weeks once weekly	80
	Personal Course in Gynecological Surgery	March 14, May 9, July 11, Aug. 29, Oct. 10, Nov. 21, 4 weeks once weekly	80
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City, Kan.	Obstetrics and Gynecology	June 17-21, 1946	Not stated
Boston University School of Medicine, 80 E. Concord St., Boston	Obstetrics and Gynecology	March 15, 1946, 6 months	375
St. Louis University School of Medicine, 1402 S. Grand Blvd., St. Louis	Gynecology and Obstetrics	April 15-May 11, 1946 4 weeks	62.50 G. I. Bill of Rights
	OPHTHALMOLOGY		
The Ophthalmalogical Study Council, 520 Commonwealth Ave., Boston	Intensive Course on the Basic Subjects of Ophthalmology	April 1-June 1, 1946	2 months 200 1 month 110
Washington University School of Medicine, Euclid Ave. and Kingshighway, St. Louis	Refresher Course in Ophthalmology	June 3-29, 1946	200
	ORTHOPEDIC SURGERY		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Orthopedics	Arranged, 3 days	20
Boston University School of Medicine, 80 E. Concord St., Boston	Orthopedic Surgery	March 15, 1946, 6 months	375
	OTOLOGY		
Harvard Medical School Courses for Graduates, 25 Shattuck St., Boston	All Day Course in Otology	April 1-30, 1946	185
	OTORHINOLARYNGOLOGY		
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City, Kan.	Eye, Ear, Nose and Throat	April 15-19, 1946	Not stated
Boston University School of Medicine, 80 E. Concord St., Boston	Ear, Nose and Throat	March 15, 1946, 6 months	375
Manhattan General Hospital, New York City	Clinical and Laboratory Course in Rhinoplasty	March 18-April 18, 1946	Not stated
	PEDIATRICS		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Pediatrics	Arranged, 3 days	20
St. Louis University School of Medicine, 1402 S. Grand Blvd., St. Louis	Pediatrics	May 13-June 8, 1946	62.50 G. I. Bill of Rights
New York Postgrad. Medical School, Columbia University, 303 E. 20th St., New York	Clinical Pediatrics	April 8-May 4 May 6-June 4, 1946	125
Washington State Medical Association, Seattle, Wash. At: Children's Orthopedic Hospital	Refresher Course in Pediatrics	Every month, 4 weeks	15
	PSYCHOSOMATIC MEDICINE		
Temple University School of Medicine, 3400 N. Broad St., Philadelphia	PG Course in Psychosomatic Medicine for the Internist and General Practitioner	March 4-30, 1946	200
	RADIOLOGY		
Boston University School of Medicine, 80 E. Concord St., Boston	X-Ray	March 15, 1946, 6 months	375
	SURGERY		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Surgery in General Practice	Arranged, 3 days	20
	Surgery of the Gastro-Intestinal Tract	Arranged, 3 days	20
	Surgery of the Head, Neck and Chest	Arranged, 3 days	20
Cook County Graduate School of Medicine, 427 S. Honore St., Chicago	Surgical Diagnosis, Postoperative and Preoperative Care	April 3, 1946, 10 weeks once weekly	100
University of Kansas School of Medicine, 39th St. and Rainbow Blvd., Kansas City, Kan.	General Surgery and Radiology	May 13-17, 1946	Not stated
Boston University School of Medicine, 80 E. Concord St., Boston	General Surgery	March 15, 1946, 6 months	375
	UROLOGY		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Urology	Arranged, 3 days	20
Boston University School of Medicine, 80 E. Concord St., Boston	Urology	March 15, 1946	375
	VENEREAL DISEASE		
University of Colorado School of Medicine, 4200 East Ninth Ave., Denver	Communicable Diseases, Venereal Disease	Arranged, 4 days	25

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1936 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

15:149-176 (Nov.) 1945

Thiouracil in Hyperthyroidism. E. Drennen.—p. 149.
Marion Sims and Other Nineteenth Century Pioneers: The Dawn of Scientific Medicine and Surgery. S. Harris.—p. 152.
Alabama Doctor. W. H. Brantley.—p. 159.

15:177-200 (Dec.) 1945

Choice of Anesthetic. A. Habeeb and H. R. Elliott.—p. 177.
Electrocardiogram: History and Clinical Application. E. H. Planck.—p. 181.
Enuresis. J. U. Reaves.—p. 183.
Marion Sims and Other Nineteenth Century Pioneers: Dawn of Scientific Medicine and Surgery. S. Harris.—p. 185.
Underlying Causes of Alabama's Health Problems. M. S. Davie.—p. 192.

American Heart Journal, St. Louis

30:321-426 (Oct.) 1945

*Traumatic Rupture of Normal Aorta in Young Adults: Report of 2 Cases. J. B. McDonald and W. A. Campbell.—p. 321.
Etiology and Pathogenesis of Neurocirculatory Asthenia: II. Mechanisms Underlying Giddiness Found in Patients with Neurocirculatory Asthenia. M. Friedman.—p. 325.
Further Evidence for Purely Valvular Origin of First and Third Heart Sounds. W. Dock.—p. 332.
Intravenous Administration of Lanatoside C to Patients Taking Maintenance Doses of Folia Digitalis up to Date of Hospitalization with Recurrent Congestive Heart Failure. T. Ray and J. S. LaDue.—p. 335.
Differentiation of Normal from Abnormal Q Waves. E. Goldberger.—p. 341.
Determination of Circulation Time: Unsuitability of Papaverine. L. Berk and N. Sapeika.—p. 365.
Electrocardiographic Features of Myocardial Infarction as Affected by Involvement of Septum and Complete and Incomplete Transmural Involvement. H. E. B. Pardee and M. Goldenberg.—p. 367.
*Transient 0 Diastolic Brachial Pressure (Indirect) Associated with Normal or Elevated Popliteal Pressure, Tachycardia and Nervous Tension. M. Wilburne.—p. 381.
New Form of Generalized Arterial Disease in Negroes: Report of 2 Cases. W. M. Yater and J. T. Roberts.—p. 390.
Evaluation of Vascular Reserve in Peripheral Vascular Disease. G. Saland and B. Calef.—p. 398.

Traumatic Rupture of Normal Aorta.—McDonald and Campbell report histories of 2 young men aged 32 and 24 respectively in whom the normal aorta had ruptured. Both ruptures occurred as the result of an automobile accident. An element produced by torsion of the head and trunk was probably an important factor in rupturing the vessel. The site of the rupture was distal to the emergence of the major branches of the aorta, which is the relatively mobile point of the thoracic aorta. A sudden blow displacing the thoracic structures might cause a rupture in this mobile section either by direct or by contrecoup force. In both patients there was a fracture of a few ribs but displacement of only one, on the right side. In the absence of abnormalities on macroscopic and microscopic study of the aorta it is clear that complete transection of all the coats of the aorta owing to trauma in these 2 young adults is in striking contrast to spontaneous rupture of the aorta resulting from a process described by Erdheim as medionecrosis aortae idiopathica. Measures directed at combating shock and supporting the circulation are fruitless.

Transient 0 Diastolic Brachial Pressure.—Wilburne observed in the course of routine examinations of men for induction into the armed forces a hitherto undescribed cardiovascular syndrome in examinees exhibiting great nervous tension. In addition to the nervous element the syndrome was characterized by transient 0 diastolic brachial pressure (indirect method), normal or elevated popliteal pressure and tachycardia. At first it was thought that perhaps these were cases of functional aortic insufficiency; consequently blood pressure readings were recorded in the lower extremities. The brachial systolic pressure associated with the 0 diastolic tension ranged from 118 to 250 mm. of mercury and averaged 159.1. The popliteal systolic and diastolic pressures in the prone position averaged 202.3 and 101.9 respectively. In the standing position the popliteal pressures were considerably higher. The heart rate ranged from 90 to 168 and averaged 127.4. Following rest periods varying between five and ninety minutes the diastolic pressure rose to values ranging from 60 to 112, exhibiting an average level of 75.2. The brachial systolic pressure revealed an average fall of 11 from the initial levels. The popliteal systolic pressure in the prone posture exhibited an average drop of 12.5. The popliteal diastolic pressure showed an average drop of 7.1. (The popliteal blood pressure in the standing position exhibited a corresponding reduction.) After resting the heart rate ranged from 76 to 148 and averaged 104.7, representing a fall of 22.7 beats per minute. These cases do not represent functional aortic insufficiency, because an aortic diastolic murmur was absent and a brachial diastolic pressure of 0 is generally not encountered in functional aortic insufficiency. Evidence of left ventricular dilatation was not found, and the diastolic pressure in the lower extremities did not show a corresponding change.

American Journal of Clinical Pathology, Baltimore

15:353-418 (Sept.) 1945

*Changes in Tissues of Children Deprived of Dietary Protein. M. Fallas Diaz and A. Nettleship.—p. 353.
Studies on Relation of Pneumotropic Streptococci to Influenza Virus. E. C. Rosenow.—p. 362.
Development of Hemolytic Anemia During Sulfa Medication. M. Rachmilewitz and D. Hermoni.—p. 381.
Myeloid Leukemia, Probably Eosinophilic in Character. J. R. Hodgson, D. H. Kaump, G. Steiner and J. Bovill.—p. 389.
Weltmann Reaction in Arthritis. C. L. Steinberg and F. W. Lowenstein.—p. 395.
Pernicious Anemia and Miliary Tuberculosis of Bone Marrow Organ. E. M. Schleicher.—p. 402.
Heredity of Agglutinogen Rh. P. Moureau.—p. 405.
Tissue Changes Induced by Senecio Riddellii. I. Rosenfeld and O. A. Beath.—p. 407.

Tissue Changes in Protein Deprivation.—Fallas Diaz and Nettleship did postmortem examinations on children who died of dietary protein deficiency. There was a moderate to severe emaciation, with universal edema and anemia. Microscopically there is loss of cell cytoplasm and nuclear condensation with a noninflammatory edema, intracellular and interstitial. There is a loss of cells from the adrenal medulla with fibrosis, and cloudy swelling of the kidney with tubular cell loss. There is severe, widespread, irregular fatty infiltrations of the liver with, in some instances, flecks of acute necrosis.

American Journal of Diseases of Children, Chicago

70:135-200 (Sept.) 1945

Human Milk Studies: XIX. Implications of Breast Feeding and Their Investigation. Icie G. Macy, H. H. Williams, J. P. Pratt and B. M. Hamil.—p. 135.
Id.: XX. Diet of Lactating Women and Collection and Preparation of Food and Human Milk for Analysis. Mildred Kaucher, Elsie Z. Moyer, A. J. Richards, H. H. Williams, Annie L. Wertz and Icie G. Macy.—p. 142.
Id.: XXI. Simple Technic for Manual Expression of Mother's Milk. Velma Davies.—p. 148.
Id.: XXII. Nicotinic Acid, Pantothenic Acid and Biotin Contents of Colostrum and Mature Human Milk. Margaret N. Coryell, Mary E. Harris, S. Miller, H. H. Williams and Icie G. Macy.—p. 150.
Id.: XXIII. Free and Total Thiamine Contents of Colostrum and Mature Human Milk. Charlotte E. Roderuck, H. H. Williams and Icie G. Macy.—p. 162.
Id.: XXIV. Free and Total Riboflavin Contents of Colostrum and Mature Human Milk. Charlotte E. Roderuck, Margaret N. Coryell, H. H. Williams and Icie G. Macy.—p. 171.
Id.: XXV. Ascorbic Acid and Dehydroascorbic Acid in Colostrum and Mature Human Milk. Bertha Munks, A. Robinson, H. H. Williams and Icie G. Macy.—p 176.
Id.: XXVI. Vitamin A and Carotenoid Contents of Colostrum and Mature Human Milk. Marjorie Lesher, J. K. Brody, H. H. Williams and Icie G. Macy.—p. 182.
Id.: XXVII. Comparative Values of Bovine and Human Milks in Infant Feeding. J. M. Lawrence, B. L. Herrington and L. A. Maynard.—p. 193.

American Journal of Hygiene, Baltimore

42:225-332 (Nov.) 1945

Study of Shigella by Means of Bacteriophage. L. F. Thomen and M. Frobisher Jr.—p. 225.
*Surveys of Nutrition of Populations: 5. Vitamin C Nutrition of a Rural Population in Middle Tennessee. J. B. Youmans, E. W. Patton, W. R. Sutton, Ruth Kern and Ruth Steinkamp.—p. 254.
Survey of Intestinal Parasites in Natives of Dutch New Guinea. R. B. Burrows.—p. 262.
Question of Transmission of Poliomyelitis to Rhesus Monkeys by Accidental Laboratory Infection. H. A. Howe and D. Bodin.—p. 266.
Evaluation of Various Measures of Anopheles Larva Density. P. F. Russell, T. R. Rao and P. Putnam.—p. 274.
Epidemiologic Studies of Encephalitis in San Joaquin Valley of California, 1943, with Isolation of Viruses from Mosquitoes. W. McD. Hammon, W. C. Reeves and P. Galindo.—p. 299.
Immunization Against Influenza with Observations During an Epidemic of Influenza A One Year After Vaccination. J. E. Salk, H. E. Pearson, P. N. Brown, C. J. Smyth and T. Francis Jr.—p. 307.
Studies of Plasmodium Gallinaceum Brumpt: III. Incidence and Course of Infection in Young Chicks Following the Subcutaneous Inoculation of Pooled Sporozoites. G. R. Coatney, W. C. Cooper and Helen L. Trembley.—p. 323.

Vitamin C Nutrition of Rural Population in Tennessee.—Youmans and his associates assessed the nutrition of a rural population in Middle Tennessee with respect to vitamin C by a study of the diet, the medical history and physical examination and determination of the concentration of vitamin C in the blood. Records of the dietary intake suggest that many people apparently can subsist on amounts of vitamin C at present believed to be inadequate without developing symptoms of ascorbic acid deficiency. The history and examination did not disclose scurvy and only infrequently revealed clinical evidence of a deficiency. Gingivitis, perhaps the best sign of minor deficiency, was found in a considerable proportion of the adults, and while statistical analysis of the data suggests the influence of other factors, there is also an indication of relation to the lack of vitamin C. X-ray examinations revealed only 1 instance of bone changes indicative of mild scurvy. With the paucity of reliable physical evidence of deficiency of vitamin C, the evaluation of the nutrition of the population in respect to this factor rests mainly on the concentration of vitamin C in the blood. Every subject tested showed some vitamin C in the blood, and only 10 had a concentration less than 0.1 mg. per hundred cubic centimeters. Whether a conclusion about the vitamin C nutrition is to be based on the evidence obtained will depend on the concentration which is designated as "abnormally low" and the significance to be attached to the concentration of ascorbic acid in the blood as an index of this nutrition. If it is assumed that concentrations below 0.3 mg. per hundred cubic centimeters represent a subnormal state of vitamin C nutrition, then by this standard about 92 subjects (8.6 per cent) of those examined were deficient.

Annals of Internal Medicine, Lancaster, Pa.

23:711-914 (Nov.) 1945

*Azotemia in Typhus Fever. A. Yeomans, J. C. Snyder, E. S. Murray, R. S. Ecke and C J. D. Zarafonetis.—p. 711.
Observations on Treatment of Graves' Disease with Thiouracil. D. P. Barr and E. Shorr.—p. 754.
Hyperophthalmopathic Graves' Disease. J. H. Means.—p. 779.
Effects of Thiouracil on Thyroid Gland. J. W. Shirer and M. Cohen.—p. 790.
Treatment of Postpneumonic Thoracic Empyema with Sulfonamides, Penicillin and Repeated Thoracenteses. A. I. Josey, J. W. Trenis and W. F. Kammer.—p. 800.
Early Diagnosis of Filariasis and Certain Suggestions Relative to Cause of Symptoms. W. E. Leede and A. I. Josey.—p. 816.
*Studies of Filariasis in Soldiers Evacuated from South Pacific. A. A. Goodman, E. M. Weinberger, Stuart W. Lippincott, A. Marble and W. H. Wright.—p. 823.
The Unusual *in Gastrointestinal Roentgenology*. G. M. Tice.—p. 837.
Acute Infectious Polyneuritis (Guillain-Barré Type). J. G. Chusid and G. H. Marquardt.—p. 852.

Azotemia in Typhus.—Yeomans and his associates report observations made in 1943 and 1944. The data were obtained from 64 patients in the United States of America Typhus Commission ward and 14 patients in the general wards of the Cairo Fever Hospital. Azotemia in epidemic louse borne typhus was found to occur frequently (in more than half of the cases), as indicated by elevated concentrations of blood nonprotein nitrogen, urea nitrogen and creatinine. The correlation between clinical severity and azotemia was striking. Elevated concentrations of blood nonprotein nitrogen were found in every fatal case in which the blood was examined. Azotemia appeared to be closely associated with excessive destruction of body protein and increased nitrogen excretion, with dehydration and a reduced output of urine in the presence of normal kidney function, and in severe cases with a sudden rapid fall in blood pressure associated with evidences of renal insufficiency. The appearance of renal insufficiency as a complicating condition in the disease was in nearly every instance the earliest indication that the patient's course would be severe or would end fatally.

Filariasis in Solders Evacuated from the South Pacific.—Soldiers, sailors and marines have been evacuated to the continental United States from various islands in the South Pacific Area because of suspected filariasis. Goodman and his co-workers report observations on 145 of these men studied at Harmon General Hospital. Signs and symptoms suggestive of filariasis (including lymphadenopathy, lymphangitis, scrotal edema, funiculitis, orchitis and varicocele) appeared on the average after about thirteen months' residence in an endemic area. The symptoms were mild, and only 6 patients experienced bouts of acute lymphangitis during the period of study in the United States. Elephantiasis or chyluria was not encountered. Microfilariae were demonstrated in the blood on one occasion in each of 4 patients (in 2 of these at oversea hospitals). Microscopic examination of excised lymph nodes in 19 cases showed only a nonspecific inflammatory response. Adult worms or remains of worms were not seen. Direct intracutaneous tests using antigens of Dirofilaria immitis and Setaria equina in 1:8,000 dilution gave positive responses in 54 per cent of cases, as compared with 6 per cent in control subjects. Of 75 patients tested with a 1:2,000 dilution of Litomosoides carinii, 46 per cent gave positive reactions. Positive complement fixation tests were found in 95 of 143 patients studied. However, the complement fixation technic used cannot be considered wholly specific, since 16 to 25 per cent of normal control subjects gave positive tests. There was agreement between the results of the complement fixation tests and the direct intracutaneous tests with S. equina and D. immitis in 66 and 71 per cent of patients respectively. Therapy included a liberal diet, "reconditioning" by means of gradually increasing activity and psychotherapy to allay fears as to possible future complications of the disease. The outlook for the men is considered good because of the relatively short residence in the endemic area and the slight degree of infection.

Archives of Dermatology and Syphilology, Chicago

52:221-300 (Oct.) 1945

New Cutaneous Syndrome Occurring in New Guinea and Adjacent Islands: Preliminary Report. T. W. Nisbet.—p. 221.
Clinical Investigation of New Cutaneous Entity. C. L. Schmitt, O. Alpins and G. Chambers.—p. 226.
*Beta Dimethylaminoethyl Benzhydryl Ether Hydrochloride (Benadryl) in Treatment of Urticaria. A. C. Curtis and B. B. Owens.—p. 239.
*Use of Benadryl for Urticaria and Related Dermatoses: Preliminary Report. L. W. Shaffer, L. Carrick and H. S. Zackheim.—p. 243.
Penicillin Ointment: Studies on Stability Relative to Potency and on Sensitivity of Human Skin to Patch Tests with Ointment. R. B. Coomber.—p. 246.
Diseases of Skin Among Natives of Northeast New Guinea. W. D. Wolfe.—p. 247.
Sensitivity of Tuberculin Patch Test (Vollmer-Lederle): Results with 318 Persons Presenting Various Dermatoses. K. Loewenthal.—p. 249.
Effect of Feeding Lipotropic Substance to Patients with Xanthelasma. A. C. Curtis and J. P. Berger.—p. 252.
Relation of Ultraviolet Induced Mutations to Speciation in Dermatophytes. C. W. Emmons and A. Hollaender.—p. 257.
Contact Dermatitis of Eyelids Caused by Antioxidant in Rubber Fillers *of Eyelash Curlers: Report of 7 Cases. G. H. Curtis.—p. 262.*
Scrotal Tongue and Its Inheritance. N. Tobias.—p. 266.

Benadryl in Urticaria.—Benadryl (beta dimethylaminoethyl benzhydryl ether hydrochloride) is a member of a new group of pharmacologically active antihistamine drugs. Curtis and Owens administered it in amounts of 50 to 100 mg. orally one to five times daily to a diverse group of 18 patients with both acute and chronic urticaria. Eleven patients experienced prompt relief of symptoms as long as the drug was taken. Three had definite and real improvement, and many of the wheals which did appear were not pruritic. Four patients were not benefited. The drug has a wide margin of safety. The only toxic manifestations noted were drowsiness and muscular aching (2 cases), dizziness, weakness and vertigo (1 case). Cumulative toxic symptoms were not noted in patients who ingested the drug as long as six or seven months. All toxic symptoms promptly disappeared when the drug was discontinued. The effect is palliative, and in many patients the urticaria recurred when the administration of the drug was discontinued. Since an antihistamine drug seems to be effective in controlling urticaria, it may be assumed that this is further indirect evidence that histamine is a factor in the production of urticaria.

Benadryl for Urticaria and Related Dermatoses.—Shaffer and his co-workers describe 8 cases of urticaria in 7 of which benadryl controlled the pruritus and caused the involution of the urticarial lesions in a fairly short period. The authors suggest that it may prove effective in the palliative relief of urticaria. In acute cases such palliation may be all that is required for their management. In cases of chronic urticaria it might offer valuable relief until investigation reveals the cause and adequate control measures can be carried out. Compared to the neurovascular stimulating action of epinephrine and ephedrine, benadryl apparently does not produce untoward effects, especially on the blood pressure, and in some instances it had a sedative action. Two cases of neurodermatitis, 1 of dyshidrotic eczema, 1 of atopic eczema and 1 of chronic lichen urticatus are hardly sufficient to appraise the value of benadryl for these diseases. However, the limited experience would suggest that it is not of value for neurodermatitis or dyshidrotic eczema. Results obtained by its use for atopic eczema and lichen urticatus warrant further trial.

Archives of Ophthalmology, Chicago

34:271-356 (Oct.) 1945

Effect of Local Anesthetics on Cell Division and Migration Following Thermal Burns of Cornea. G. K. Smelser and V. Ozanics.—p. 271.

Standard Illuminants in Relation to Color-Testing Procedures. Le G. H. Hardy.—p. 278.

*Senile Hyaline Scleral Plaques. K. L. Roper.—p. 283.

Traumatic Iridodialysis: Its Surgical Correction: Report of a Case. A. Barlow and H. L. Weiner.—p. 292.

Tests for Detection and Analysis of Color Blindness: I. An Evaluation of Ishihara Test. Le G. H. Hardy, Gertrude Rand and M. Catherine Rittler.—p. 295.

Stereoscopic Sensitivity in Space Eikonometer. K. N. Ogle and V. J. Ellerbrock.—p. 303.

Clinical Differentiation of Emboli in Retinal Arteries from Endarteritis. A. J. Bedell.—p. 311.

Unusual Case of Hodgkin's Disease: Second Report. J. W. Avery and J. W. Warren.—p. 318.

Retinal Vascular Micrometry and Essential Hypertension. F. L. F. Koch.—p. 321.

Senile Hyaline Scleral Plaques.—Roper describes 5 cases of senile hyaline scleral plaques; 2 of the patients were 72, 1 was 78 and the other 2 were over 80 years of age. Patients are frequently not aware of the presence of the plaques. Advanced age is largely responsible for predisposition to the condition, since in the aged dehydration and progressive sclerosis of the connective tissue of the entire body, as well as of the external tunic of the eye, occur. It is probably the result of a local nutritional disturbance, which in turn is due to arteriosclerotic changes. The fact that this unusual degenerative condition of the sclera has a predilection for the area lying in front of the insertions of the rectus muscles suggests that the changes occur not only because of local circulatory disturbances but because of the constant stress and strain on the sclera fibers, which are in such close proximity to the insertions of the rectus muscles. The plaques are situated about 3 mm. from the limbus and 1.5 to 2 mm. anterior to the insertions of the rectus muscles. They are generally rectangular, but occasionally only a rounded or oval patch situated opposite either end of the insertion of a rectus muscle is observed. Microscopic studies have shown that in place of normal sclera there remain some cellular and nuclear fragments and large masses of hyalin. There is general atrophy of the overlying conjunctiva and episclera. A condition without real resemblance, but which has been confused with it, is scleromalacia perforans. The two conditions are alike only in their chronicity and in the fact that they affect the sclera predominantly. Scleromalacia perforans is primarily necrotic in origin, whereas senile hyaline sclera plaques are primarily degenerative in character.

Bulletin of Johns Hopkins Hospital, Baltimore

77:291-344 (Oct.) 1945

Studies on Patients Convalescent from Fracture: III. Urinary Excretion of Calcium and Phosphorus. J. E. Howard, W. Parson and R. S. Bigham.—p. 291.

Comparison of Antithyroid Action of Thioureas and Allied Substances. R. H. Williams and E. G. Frame.—p. 314.

Brachymetopody. D. H. Hooker.—p. 329.

Microdetermination of Antimony. T. H. Maren.—p. 338.

Bulletin New York Academy of Medicine, New York

21:561-624 (Nov.) 1945

Medical and Public Health Importance of the Insecticide DDT. F. C. Bishopp.—p. 561.

Clinical Observations on Treatment of Various Infections with Penicillin. D. G. Anderson.—p. 581.

Certain Biologic Factors in Human Disease. G. Draper.—p. 599.

A Critique of Psychotherapy in Arterial Hypertension. C. Binger.—p. 610.

Trichinosis, a Major Health Problem in the United States: What Shall Be Done About It? S. E. Gould.—p. 616.

Journal of Allergy, St. Louis

16:261-322 (Nov.) 1945

Measurement of Circulating Ragweed Antigen. Mary C. Johnson, H. L. Alexander, J. H. Alexander and H. M. Walker.—p. 261.

Quantitative Estimation of Absorption of Ingested Allergen. J. R. Spies, D. C. Chambers, H. S. Bernton and H. Stevens.—p. 267.

Quantitative Study of Relation of Synthetic 3-Pentadecyl Catechol to Hypersensitiveness to Rhus Toxicodendron (Poison Ivy) as Shown by Patch Test. H. Keil, D. Wasserman and C. R. Dawson.—p. 275.

Spontaneous Mediastinal and Subcutaneous Emphysema Complicating Bronchial Asthma: Report of Additional Case and Analysis of 25 Previously Reported Cases. E. Schwartz.—p. 279.

Mold Allergy: I. Field Survey of Philadelphia Area. G. I. Blumstein and S. U. McReynolds.—p. 285.

Relief of Dermographism and Other Urticarias of Histamine Origin by a Synthetic Benzhydryl Alkamine Ether. S. M. Feinberg and S. Friedlaender.—p. 296.

Contact Dermatitis Due to Contact with Chrome 17 per Cent Steel Identification Tags of United States Navy. M. C. Harris.—p. 299.

Journal of Clin. Endocrinology, Springfield, Ill.

5:363-406 (Nov.) 1945

*Treatment of Post-Traumatic Simmonds' Disease with Methyl Testosterone Linguets. H. Lisser and L. E. Curtis.—p. 363.

Accumulation, Interpretation and Presentation of Data Pertaining to Metabolic Balances, Notably Those of Calcium, Phosphorus and Nitrogen. E. C. Reifenstein Jr., F. Albright and S. L. Wells.—p. 367.

Pheochromocytoma: Case Report, with Certain Observations on Pathologic Physiology. E. J. Mortell and J. P. Whittle.—p. 396.

Effect of Thiouracil on Human Tissues. W. S. Reveno.—p. 403.

Methyl Testosterone Linguets in Post-Traumatic Simmonds' Disease.—Lisser and Curtis report that a man in 1935, at the age of 20, sustained multiple fractures of the skull in a motorcycle accident. After the injury there were noted polydipsia and polyuria. In the first two months there was a loss of 33 pounds (15 Kg.). During the succeeding eighteen months there was progressive loss of facial and body hair, loss of libido and potentia and increasing fatigability, and the skin acquired a fawn color. There also had been a considerable decrease in mental acuity, with the concomitant development of phobias. The endocrinopathy was diagnosed as "post-traumatic Simmonds' disease" or panhypopituitarism. From 1936 to 1938 the patient received various pituitary extracts, with little if any improvement. In 1942 the patient began to have attacks of pain in the chest and back and hematuria associated with nausea and vomiting. Injections of gonadotropin were started and continued for about ten months. The patient believed that this medication increased his strength and stopped his pain, nausea and vomiting and possibly increased the growth of general body hair. Physical examination did not show special change. Methyl testosterone linguets were now prescribed in a dosage of 20 mg. daily for ten weeks, then 15 mg. daily for six weeks, and 5 mg. daily from Nov. 9, 1944. The latter dose proved insufficient and was increased to 10 mg. daily on Feb. 1, 1945. During the period of testosterone therapy, growth of pubic hair, beard and general body hair occurred. Libido has returned to normal. Erections occur often, the patient has married, and marital relations are satisfactory. He is now working from ten to fourteen hours a day. His physical strength is now much greater, and there has been an increase of 9.5 Kg. in weight.

Six months after testosterone therapy was instituted the basal metabolic rate had risen from minus 28 per cent to plus 2 per cent and the serum cholesterol had dropped from 278 mg. per hundred cubic centimeters to a normal value of 170 mg.

Journal of Neurosurgery, Springfield, Ill.

2:463-556 (Nov.) 1945

Transventricular Wounds of Brain W. G Haynes—p 463
Extensive Brain Wounds Analysis of 159 Cases Occurring in a Series of 342 Penetrating War Wounds of Brain W. G Haynes—p 469
*Spasm of Internal Carotid Artery. A D Ecker—p 479
Neurogenic Ossifying Fibromyopathies Preliminary Report A B Soule Jr—p 485
Serous Meningitis. H C. Voris—p 498
Prevention of Nerve Regeneration and Neuroma Formation by Caps of Synthetic Resin M V Edds Jr—p 507.
Early Nerve and Bone Repair in War Wounds H G Schwartz and J M. Parker.—p 510
Antigenicity of Bovine Thrombin: Clinical Evaluation R U. Light—p 516
Clovis Vincent, Neurosurgeon and Patriot R Rabinovitch—p 530

Spasm of Internal Carotid Artery.—Ecker reports 4 cases of dysfunction of the brain due to relatively mild trauma of the internal carotid artery. The first 3 were cases of penetrating wounds of the neck without laceration or thrombosis of the artery or any evidence of direct head injury. The fourth case was a blunt head injury with fracture of the skull and postmortem evidence of brain swelling and ischemic necrosis of the wall of the internal carotid artery. The common denominator in all 4 cases was the application of force to the carotid artery, resulting in spasm of this vessel Within ten minutes there resulted dysfunction of the cerebral hemisphere on the same side, which persisted for a period varying with the degree of anoxemia produced There was swelling of the brain, which probably reached its maximum in twenty-four hours and lasted at least three days. This brain swelling may be due in part to a vasoparalysis of the central nervous system, which in turn may be closely associated with narrowing of the cerebral arteries Dilatation of the cerebral ventricles, especially on the same side, may be a permanent residuum. The syndrome of spasm of the internal carotid artery consists of (1) dysfunction of a cerebral hemisphere, (2) brain swelling in the acute stage, (3) internal hydrocephalus in a late stage and (4) narrowing of the cerebral arteries.

New England Journal of Medicine, Boston

233:607-638 (Nov. 22) 1945

Dermatome Skin Grafts for Burns in Patients Prepared with Dry Dressings *With and Without Penicillin* S M. Levenson and C C. Lund, with technical assistance of M. E Lamb and Alice K Daly—p 607.
*Nutritional Defects Among Children in Vermont H B Pierce, P. F. Fenton, W. Wilkins, M E. Newland and Pauline S Budge—p 612
Medical Progress Rheumatoid Arthritis: Its Varied Clinical Manifestations Marian W. Ropes and W Bauer.—p 618
Subacute Yellow Atrophy of Liver—p 624.
Adenocarcinoma of Sigmoid, with Extension to Ileum; Ileocolic Fistula—p 627.

Nutritional Defects Among Vermont Children.—Pierce and his associates made a survey of the nutritive status of 386 Vermont school children selected to represent rural and urban groups of various ages and economic levels A review of the food intake showed the greatest defect to be the low intake of fruits and vegetables. Blood studies revealed that 25 per cent of a group of 176 children had plasma vitamin C levels below 0.6 mg. per hundred cubic centimeters, and on physical inspection 40 per cent of the entire series had inflammation of the gums of varying intensity. Severe forms of spongy, bleeding gums were found in only a small percentage of the children Six per cent of 170 children had low hemoglobin values suggestive of a mild anemia Urban children had higher hemoglobin levels than did rural children. Skeletal changes usually associated with rickets were found in about 85 per cent of the children. Signs associated with a shortage of riboflavin were found in a small percentage of the children, but they could not be accepted as definitely indicating any serious deficiency of this vitamin. Some degree of folliculosis, at least of the outer aspect of the arm, was found in 40 per cent of the children, and 5 of these subjects had a generalized folliculosis Mild cases of follicular conjunctivitis were frequent. Premature loss of the teeth and dental caries were found to be extremely prevalent

Psychoanalytic Quarterly, Albany, N. Y.

14:437-596 (Oct) 1945

Amnesic States in War Neuroses: Psychogenesis of Fugues C Fisher—p 437.
"Repression" in Prefreudian American Psychiatry. H A Bunker.—p 469.
Psychologic and Psychodynamic Aspects of Disturbances in Sleep Mechanism C Davison—p 478
Psychoanalytic Observations on Dreams and Psychosomatic Reactions in Response to Hypnotics and Anesthetics. B Mittelmann—p. 498.
Interpretation of Typical and Stereotyped Dream Met with Only During Psychoanalysis S S. Feldman—p 511
The Negative of Dreams N. Fodor.—p 516
Mechanism of Hysteria Elucidated During Hypnoanalysis L R Wolberg—p 528

Psychosomatic Medicine, Baltimore

7:321-394 (Nov.) 1945

Hormonal Modifications of Social Behavior I Effect of Sex Hormone Administration on Social Status of Male Castrate Chimpanzee G Clark and H G Birch—p 321
Sleep Paralysis and Combat Fatigue. C Van der Heide and J Weinberg—p 330
Correlation Between Emotions and Carbohydrate Metabolism in 2 Cases of Diabetes Mellitus A. Meyer, L N. Bollmeier and F Alexander—p 335
Effects on Industrial Production of Administration of Delta 5 Pregnenolone to Factory Workers· I. G Pincus and H. Hoagland—p 342
Effects on Industrial Production of Administration of Delta 5 Pregnenolone to Factory Workers II. G Pincus, H. Hoagland, C H. Wilson and N. J Fay—p 347.
Effect of Pregnenolone on Ability to Perform Prolonged Psychomotor Tests Isabel Graham-Bryce, A K Bullen and W. H Forbes—p 353
Detection and Management of Personality and Psychosomatic Disorders Among Industrial Personnel B. Mittelmann, A Weider, H. A Vonachen, M Kronenberg, Norma Weider, K Brodman and H G Wolff—p 359.

Review of Gastroenterology, New York

12:393-468 (Nov.-Dec) 1945

Fungous Disease of Spleen Report of Case A Bassler.—p 413
Dietary Considerations in Malignant Neoplastic Diseases: Preliminary Report M B Gerson—p 419
*New Aspect in Treatment of Amebiasis B Sokoloff—p 425.
Profenil—New Antispasmodic Preliminary Report S Weiss—p 436

New Treatment of Amebiasis.—Sokoloff found that lactic acid, even in a weak solution of 1:1,000, impedes the multiplication of protozoa, including amebas. Since ingested lactic acid is actively absorbed in the small intestine and therefore is of little use in the treatment of infections of the large intestine, a special anhydrous form of lactic acid, trilactic, was developed Trilactic dissolves in water slowly and for this reason reaches the colon and cecum without being affected greatly by the gastric juice. Research has demonstrated that trilactic has a therapeutic effect in animals infected with pathogenic bacteria Rats infected with Endameba histolytica were submitted to trilactic therapy. Although they had only a mild form of amebiasis, their stools showed presence of trophozoites and cysts. These disappeared after seven days of treatment with trilactic The animals seemed to have been completely cured During the last five years trilactic has been tested on a number of patients with amebic infection. In many instances they received the trilactic treatment after emetine had failed to eliminate completely the pathogenic ameba, or when the patient had experienced a toxic reaction from this drug. In a few instances trilactic was administered after protracted iodine therapy when stools still showed presence of the cysts Such combined therapy showed the most satisfactory results not only in the complete elimination of the ameba but also in the prompt restoration of the normal bowel movement Sixty-two patients affected with acute and chronic amebic infections have been treated with the anhydrous form of lactic acid known as trilactic. Complete recovery was obtained in 36, improvement in 15 and negative results in 11 patients.

Rhode Island Medical Journal, Providence

28:701-776 (Oct.) 1945

Hugh Owen Thomas—Apostle of Rest. R. Hammond—p 715
Postconvalescent Care of Rheumatic Fever. L A Sieracki—p 720
Pneumococcic Meningitis Successfully Treated with Combined Penicillin and Sulfadiazine Therapy R. G Murphy and F. B Cutts—p 722.
Medical Opinion in Rhode Island: Report 1. Diagnostic Centers Prepared by the Committee on Postgraduate Education A M Burgess, B. E Clarke, H P. B Jordan, E S Wing and J F. Kenney—p 725.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian J. Exper. Biol. and M. Science, Adelaide

23:165-247 (Sept.) 1945. **Partial Index**

Natural Resistance Against Diphtheria Toxin. E. Singer.—p. 165.
Studies on Detoxication of Toxins: Catalytic Breakdown of Crystalline Ovalbumin. M. H. Petherick and E. Singer.—p. 171.
Studies on Hirst Hemagglutination Reaction with Influenza and Newcastle Disease Viruses. F. M. Burnet, W. I. B. Beveridge, J. McEwin and W. C. Boake.—p. 177.
Further Notes on Lytic Phenomenon Shown by Group B Streptococci. E. Munch-Petersen, R. Christie and R. T. Simmons, with technical assistance of H. A. Beddome.—p. 193.
Action of Halogens on Influenza Virus, with Special Reference to Action of Iodine Vapor on Virus Mists. J. D. Stone and F. M. Burnet.—p. 205.

British Journal of Experimental Pathology, London

26:217-276 (Aug.) 1945. **Partial Index**

Lysis of Red Blood Cells by Tissue Slices. G. Brückmann and E. Wertheimer.—p. 217.
Effect of Sulfanilamide on Arginine and Carbon Dioxide Requirements of Streptococci (Lancefield Group D). E. F. Gale.—p. 234.
Examination of Rabbit Anti-A Immune Serums Produced by Means of Artificial A-Antigen. W. T. J. Morgan and W. M. Watkins.—p. 247.
New Test for Detection of Weak and "Incomplete" Rh Agglutinins. R. R. A. Coombs, A. E. Mourant and R. R. Race.—p. 255.
Comparative Potency of Mammary Tumor Agent of Mice of Different Genetic Constitution. L. Dmochowski.—p. 267.
Experimental Nodular Goiter. F. Bielschowsky.—p. 270.

British Journal of Ophthalmology, London

29:557-612 (Nov.) 1945

Intraocular Foreign Bodies: Problems of Localization and Operative Procedure. J. Kraus and W. A. Briggs.—p. 557.
War Surgery of the Eye in Forward Areas. E. C. Zorab.—p. 579.
Ophthalmology in the British North African and Central Mediterranean Forces. B. W. Rycroft.—p. 594.

British Journal of Radiology, London

18:369-402 (Dec.) 1945

Fifty Years of X-Ray Production and Measurement in Medical Radiology. E. A. Owen.—p. 369.
*Pneumonoconiosis in Radiator and Boiler Finishers. L. Dunner, R. Hermon and D. J. T. Bagnall.—p. 377.
Design of Filters to Produce "Flat" X-Ray Isodose Curves at Given Depth. A. E. Chester and W. J. Meredith.—p. 382.
Standardization of Radiologic Apparatus: Symposium. F. Ellis, J. W. McLaren and J. Read.—p. 385.
Investigation of Free Gas in Peritoneal Cavity. J. E. Bannen.—p. 390.
Radiologic Appearances of the Chest Following Partial Asphyxiation by Smoke Screen. P. H. Whitaker.—p. 396.
New Method of Primary Screening by X-Ray Examination. A. Scheel. —p. 398.

Pneumonoconiosis in Radiator and Boiler Finishers.—Dunner and his associates found that 10 of 13 men who were radiator and boiler finishers showed changes in their chest roentgenograms. The men engaged in this work inhale a great quantity of dust. The dust consists mainly of silica from the sand, iron derived from the boilers and radiators, and carbon from the burnt oil. The roentgenologic aspects are of greatest importance for diagnosis. They consist of a fine mottling, especially noticeable in the mid and lower zones of the lung. Fibrosis, such as occurs in boiler scalers and graphite workers, has not been encountered. Eleven of the 13 men have been coughing or spitting for years and 3 of them have complained of shortness of breath, but 11 have felt fit for work. Two of the 13 men felt ill and unfit for the job. One of these ceased work as a finisher. The chest roentgenogram of this man shows rather dense mottling in the lung. The second patient—56 years of age—feels unfit after having worked in the department for thirty-six years, but the roentgenogram of his chest does not reveal evidence of occupational disease. His condition appears to be attributable to emphysema and premature senility. Whether the appearances in the lung are due only to the deposits of dust or whether there are also reactions of the lung tissue can be decided only by postmortem examination or by experimental work on animals. If the condition proves to be a form of silicosis, then, in the event of disability, these men would be entitled to compensation. In any event, measures of prevention should be instituted, and regular x-ray examination is desirable.

British Medical Journal, London

2:755-794 (Dec. 1) 1945

The Renaissance and Its Influence on English Medicine, Surgery and Public Health. A. S. MacNalty.—p. 755.
*Prevention of Homologous Serum Jaundice. J. F. Loutit and K. Maunsell.—p. 759.
Ear Disease in Children. D. R. Paterson.—p. 761.
Poisoning Due to Mobilization of Lead from Skeleton by Leukemic Hyperplasia of Bone Marrow. A. Brown and S. L. Tompsett.—p. 764.
Case of Chronic Undermining Ulceration Treated with Penicillin. A. Leacock.—p. 765.
Tropical Medicine in War and Peace. C. M. Wenyon.—p. 774.

Prevention of Homologous Serum Jaundice.—Loutit and Maunsell say that homologous serum jaundice occurs from 40 to 160 days after the introduction of foreign homologous serum into a recipient. This introduction may be accidental, as during routine venipuncture with syringe and needle for blood samples for blood sugar determinations or routine intravenous injections (e. g., arsphenamine, pentothal), called "syringe jaundice." Traces of foreign blood are believed to have been left in the syringe and, through failure to clean and sterilize the syringe, this foreign serum gained access to the subject's circulation. The introduction of foreign serum may be deliberate, such as in serum or plasma transfusion, prophylactic injections of measles and mumps convalescent serum or normal adult serum and yellow fever vaccination in which human serum is the suspension medium for the killed virus. In the accidental variety of serum jaundice adequate cleaning and sterilization of syringes and needles has been shown to reduce the incidence of postarsphenamine jaundice practically to zero. When the introduction of serum is deliberate, prevention of homologous serum jaundice is much more difficult. The yellow fever vaccine problem was solved only by giving up the use of serum as a suspension medium. The authors direct attention to the good results obtained by MacCallum and Bauer but suggest that their good results may have been due not to apparently healthy donors but to using unpooled serums. Homologous serum jaundice often follows transfusion of serum or plasma. It appears to be uncommon after transfusion of whole blood. The authors therefore decided to investigate the results of introduction of single serums into a number of recipients and to compare the incidence of jaundice with that in a series of cases in which only blood transfusion had been given. Each of 99 individual serums was injected into an average of 6 normal recipients. Homologous serum jaundice was not detected within 150 days. Frank homologous serum jaundice did not occur in a selected series of 213 blood transfusions. Two possible cases of homologous serum jaundice following blood transfusion alone are recorded. Since these experiments with individual serums suggest that they are as safe as individual bloods, it is recommended that individual serums should be used for therapeutic and prophylactic purposes.

Journal of Laryngology and Otology, London

60:91-144 (March) 1945

Otolaryngology in the Army: Review of Four and One-Half Years in Middle East. R. B. Lumsden.—p. 91.
Effect of Sinusitis on Flying Personnel. G. H. Bateman.—p. 110.
Diverticula of Thoracic Portion of Esophagus: Case. J. A. Seymour-Jones.—p. 121.
Case of Recurrent Toxic Hebetude from Chronic Mastoiditis. W. S. Adams.—p. 126.

Journal of Physiology, Cambridge

104:105-238 (Oct.) 1945

Experiments on Hypothalamic-Pituitary Control of Water Excretion in Dogs. Mary Pickford and A. E. Ritchie.—p. 105.
Study of Effects of Rapid "Decompression" in Certain Animals. P. Eggleton, S. R. Elsden, J. Fegler and C. O. Hebb.—p. 129.
Effect of Cutaneous Burns on Histamine in Mice. J. Dekanski.—p. 151.
Vasodilatation in Human Skeletal Muscle During Posthemorrhagic Fainting. H. Barcroft and O. G. Edholm.—p. 161.
Resting and Action Potentials in Single Nerve Fibers. A. L. Hodgkin and A. F. Huxley.—p. 176.
Excretion of Urea, Salts and Water During Periods of Hydropenia in Man. R. A. McCance.—p. 196.
Action of Gonadotropic Hormone and Pituitary Corticotropic Hormone on Cholesterol Content of Adrenals. R. A. Carreyett, Y. M. L. Golla and M. Reiss.—p. 210.
Effect of Intensity of Illumination on Matching of Solutions of Carboxyhemoglobin. J. L. D'Silva and F. M. G. Stammers.—p. 215.

Lancet, London

2:729-764 (Dec. 8) 1945

*Cultivation of Rickettsia Tsutsugamushi in Lungs of Rodents: Preparation of a Scrub Typhus Vaccine. F. Fulton and L. Joyner.—p. 729.
Scrub Typhus Vaccine: Large Scale Production. F. E. Buckland and others.—p. 734.
*Poisoning by Barium Carbonate. W. Morton.—p. 738.
*Thiouracil in Pregnancy: Effect on Fetal Thyroid. L. J. Davis and W. Forbes.—p. 740.
Direct Laryngoscopy and Tracheal Intubation: Simple Method. B. Kenton.—p. 742.

Cultivation of Tsutsugamushi Rickettsia in Rodents.—Fulton and Joyner describe a method of adapting Rickettsia tsutsugamushi to grow in the lungs of mice. Still better yields were obtained by passing the mouse lung adapted strain into the lungs of cotton rats. A vaccine prepared from cotton rat lung suspension protected mice subsequently infected with living R. tsutsugamushi. The best protection was obtained when the mice were vaccinated intraperitoneally and infected by the same route, but some protection could also be demonstrated when the mice were vaccinated subcutaneously and infected by the intraperitoneal route. Without a field trial it is impossible to decide whether or not this vaccine will be of value in man.

Poisoning by Barium Carbonate.—Morton describes two attacks of food poisoning which involved 85 British soldiers in an area of the Persia/Iraq command and were subsequently shown to be due to barium carbonate. In the first outbreak 13 men were admitted to a military hospital with acute gastroenteritis. The men were taken ill one hour after their evening meal, which consisted of meat and vegetables followed by marmalade tart. Three sergeants who had refused the tart were not affected. Five soldiers who had eaten some of the remaining tart but no other part of the meal also became ill and were admitted to the hospital. Before laboratory findings regarding the first outbreak, other than those excluding arsenic as the poison, were available 71 men in the same unit were taken ill two hours after a meal. Of these, 31 were admitted to the hospital and 40 were treated in the unit. The meal consisted of meat, vegetables and treacle tart. Again only the men who had eaten the tart were affected. A chemical analysis of the pastry of the tarts revealed large quantities of barium carbonate. At the supply depot a sack containing 4 pounds of barium carbonate for use as rat poison had been placed in error in the flour store, filled with ordinary flour and issued to the unit. This flour had been used only for the pastry of the tarts. The symptoms consisted of an initial phase of gastroenteritis with tingling sensations of the face and neck, followed by loss of tendon reflexes, disordered action of the heart and muscle paralysis. In a few severe cases paralysis spread and became generalized, in 1 case leading to almost complete respiratory paralysis. Recovery was rapid, and there were no deaths.

Thiouracil in Pregnancy.—Davis and Forbes report that a woman aged 21 who was admitted to a hospital in April 1944 with the symptoms of mild thyrotoxicosis and who had been delivered of a healthy child six months previously was given thiouracil 600 mg. daily. This treatment was well tolerated and gave considerable symptomatic benefit. The patient was discharged from the hospital on July 6, 1944 and instructed to take thiouracil 200 mg. daily. Thereafter she was seen at short intervals, and on each occasion her general condition was excellent. When seen in November she believed that she had recently become pregnant. Thiouracil was therefore reduced to 200 mg. on alternate days. A month later her condition was still satisfactory and the diagnosis of pregnancy confirmed. She continued to take thiouracil as directed and remained in good health until March 18, when she complained of headache, which persisted during the next two days, and on March 20 she suddenly became cyanosed, collapsed and died. She was then six months pregnant. Necropsy studies were made on the mother and the fetus. The cause of the mother's death was uncertain. The thyroid of the fetus was enlarged and hyperplastic, as compared with a presumably normal gland from a premature infant, and showed histologic evidence of considerable functional activity. It resembled the gland of an adult receiving too much thiouracil. Administration of thiouracil to pregnant women, and probably to nursing mothers, demands caution.

Practitioner, London

155:257-328 (Nov.) 1945

Recent Advances in Treatment: Surgery. W. H. Ogilvie.—p. 257.
Chemotherapy. L. Whitby.—p. 264.
Industrial Medicine. D. Hunter.—p. 270.
Rehabilitation. H. Balme.—p. 287.
Arthritis and Chronic Rheumatism. D. H. Collins.—p. 293.
Physical Medicine. F. S. Cooksey.—p. 300.
Intestinal Infestations. E. H. V. Hodge.—p. 306.
Allergy. D. Harley.—p. 313.

Confinia Neurologica

6:57-168 (No. 2/3) 1944. **Partial Index**

Method of Correlation to Ventricular Capacity Applied to Various Neuropsychic Disorders. A. Melley.—p. 57.
II. Biological Study and Ventriculography in Fully Developed Cerebrotrigeminal Angiomatosis. Denise Louis-Bar and F. Verschueren.—p. 65.
*Syndrome of Amyotrophic Lateral Sclerosis Caused by Cervical "Hour Glass Tumor." T. De Lehoczky and L. Piri.—p. 71.

Cervical Tumor Simulating Amyotrophic Lateral Sclerosis.—De Lehoczky and Piri report the case of a neurogenous, epidural and paravertebral tumor is a boy aged 16. Two years prior to admission the boy had developed pain in the neck and later pain in the left hand with increasing weakness and paresthesia in the left arm. One year later the same symptoms appeared in the right arm and in the right leg. On admission neither pain nor paresthesia was present, but the patient's strength was diminished and his muscles were atrophic. There was an egg sized tumor in the left supraclavicular fossa which could be traced to the left transverse process of the sixth and seventh cervical vertebrae. The sixth cervical intravertebral foramen was enlarged on the left side. The tumor, 9.5 cm. in length and 3.7 cm. in width, was removed in one piece through cervical approach without resort to laminectomy. On microscopic examination the tumor proved to be a typical neurilemmoma. It is suggested that the hour glass tumor gave rise to the symptoms by pressure of its intraspinal prolongation on the ventral part of the cord, the anterior pyramidal tract and the anterior gray horn cells. The removal of the tumor was followed by rapid improvement in the severe paralytic syndrome. This may be explained because of the epidural location of the intraspinal part of the tumor.

Hospital, Rio de Janeiro

28:339-490 (Sept.) 1945. **Partial Index**

*Siderosis Bulbi. A. Paulo Filho, S. Rafael Sebas and A. Giardulli.—p. 339.
BCG in Adults. F. de P. Ferreira da Cunha.—p. 417.

Siderosis Bulbi.—A man harbored a chip of iron in his eyeball for eleven years before the appearance of siderosis bulbi. The cornea and muscular tissues of the iris did not contain iron pigment. This was selectively located on the retina in the form of accumulations of free pigment in granulations. The iron in the eyeball was ionizable. Paulo Filho and his associates believe that the first change caused by metallic iron is the partial coagulation of the cytoplasm. Later the newly formed granulations of iron pigment cause necrosis of the retinal cells, with consequent blindness.

Revista Medica de Chile, Santiago

73:755-832 (Sept.) 1945

*Physiopathology and Therapy of Hepatic Cirrhosis. R. Yazigi, A. Jedlicky, H. Vasquez, E. Cumsille and L. Spektor.—p. 755.
Roentgenologic Diagnosis of Bronchiectasis. F. Daza.—p. 774.
Bronchoscopy in Bronchiectasis. A. Gez.—p. 778.
Medical Treatment of Bronchiectasis. R. Valdivieso D.—p. 781.
Intracardiac Nervous Apparatus, a Perplexing Regulatory Mechanism. F. Hoffman, S. Middleton and J. Talesnik.—p. 784.
Determination of Salicylic Acid in Blood. J. Cabello R.—p. 788.
Gastric Juice and Malignant Gastric Lesions: Comparison of Hydrochloric Acid with That Encountered in Group with Gastric and Duodenal Ulcers. H. Alessandri, J. Lerner and R. Sanz.—p. 793.

Physiopathology and Therapy of Hepatic Cirrhosis.—Yazigi and his associates report observations on 21 patients with hepatic cirrhosis, whom they treated with direct transfusions of the ascitic fluid. They usually began with injections of from 100 to 150 cc. and cautiously increased the quantity until in some cases they had given as much as 1,000 cc. Favorable results usually became manifest rather early. If after five or six transfusions the diuresis does not increase, the treatment will usually result in failure. There were 9 immediate successes and 12 failures. The injections were given every two or three days. Twelve other ascitic patients were treated with blood transfusions. In this group there were 6 immediate successes and 6 failures. The authors were unable to estimate late results in these cases. Both treatments were given without ill effects.

Acta Chirurgica Scandinavica, Stockholm

92:387-479 (Oct. 5) 1945. Partial Index

Peculiar Bone Tumor (Osteoid Osteoma or Corticalis Osteoid): Case Report. I. Palmer.—p. 387.
Caput Necrosis After Traumatic Dislocation of Hip Joint in 4 Year Old Boy, and Control Examinations of 8 Cases of Luxatio Coxae Traumatica. S. Quist-Hanssen.—p. 393.
Injury to Pancreas Causing Rise of Temperature After Splenectomy. E. Saarenmaa.—p. 403.
*Edema in Surgical Patients. L. Efskind.—p. 419.
*Treatment of Bilateral Acoustic Tumors: Report of 6 Surgical Cases, with Review of 13 Cases from Literature. R. Frykholm.—p. 451.
Testicular Prosthetics After Legal Castration. H. Wulff and K. Sand. —p. 470.

Edema in Surgical Patients.—Efskind reports observations *on 72 patients with different surgical diseases. None of them* presented organic lesions (cardiac, renal, vascular) which might predispose to edema. Sixty-nine of the patients were operated on, and edema was as a rule observed during the postoperative period. The presence of edema was ascertained by finger pressure. Hypoproteinemia is relatively frequent in patients with chronic surgical disorders, since the disorder itself and the operation lead to a drop in the protein content of the blood. Acute hypoproteinemia is usually not associated with edema, even when the protein values are very low. In chronic hypoproteinemia, edema may occur with relatively high protein content. In the author's cases the critical concentration for the occurrence of edema was at about 5.6 per cent total protein; the corresponding concentration in the declining phase was on the average 6.1 per cent. Both these figures are not absolutely fixed values but depend on the length of time the hypoproteinemia and the edema have existed and on their degree of intensity. The absolute limit below which edema invariably appeared was at 4.5 per cent. By converting the protein values into the values for osmotic pressure, the best information as to threatened edema may be provided. In the prophylaxis and treatment of edema in surgical patients the most important primary predisposing factor is hypoproteinemia, which may often be combined with abnormal distribution of fractions. Isolated decrease in the content of albumins seems to be of minor importance. Of the secondary predisposing factors the fluid-salt factor occupies first place. Other secondary factors are the patient's age and general condition, the operative trauma and possible infection. Liver function and its mobile store of proteins are important with respect to the normal regulation of the fluid-salt balance. Protein deficiency is a considerably more important factor than the increased losses in proteins, but a reduced production *also seems to play an important part in the* hypoproteinemia of surgical patients.

Bilateral Acoustic Tumors.—Frykholm reports 6 cases of bilateral acoustic tumors in 3 men and 3 women, 5 of them between the ages of 20 to 28 and the sixth a woman aged 44. All the patients were operated on, 1 of whom died during the operation and 2 others showed no improvement and survived only one to two months. *The 3 remaining patients* were relieved from most of their distressing subjective symptoms and showed improvement in their work capacity. One of them has survived the bilateral intracapsular enucleation of the tumors for more than seventeen years. In the 2 cases in which surgical intervention was performed early, the treatment resulted in definite benefit. Cases of general neurofibromatosis in which the lesions are widely distributed *within the* central and peripheral nervous systems with the severe alterations not due to the acoustic tumors should be excluded from surgical treatment. In all cases a bilateral exposure of the cerebellum should be performed. The dura should not be sutured when the wound is closed unless both tumors have been radically removed. If some hearing function is preserved, the tumor on the side on which loss of hearing is most advanced should be attacked first and its removal performed as radically as possible, preferably with preservation of the facial nerve. The patient will probably not improve completely, but he will certainly be in a better condition *than if he was totally deaf.* The other tumor is not attacked until the general condition begins to deteriorate or loss of hearing is complete. *If improvement is not attained by* the unilateral extirpation and if the patient's condition is desperate, the other tumor may be extirpated in a second session without regard to hearing function but avoiding a bilateral facial paralysis. If the patient is already completely deaf, both tumors should be removed as radically as possible. This can be performed in one or two stages, depending on how well the operation is tolerated. If the facial nerve has been preserved during the removal of one tumor, a radical extirpation may be attempted on the opposite side; otherwise only an intracapsular enucleation is performed.

Acta Medica Scandinavica, Stockholm

122:193-279 (Oct. 5) 1945

*Effect of Intravenous Injection of Acetylcholine in Man: I. Observations on Normal Persons. M. Segers, J. Lequime and H. Denolin.—p. 193.
*Examination of Tongue: Clinical and Photographic Study. A. Frantzell, R. Törnquist and J. Waldenström.—p. 207.
Functional Prolongation of PQ Time of Electrocardiogram Based on Certain Case. E. Halminen.—p. 238.
Provocation Factor in Pathogenesis of Erythema Nodosum, with Special Reference to Case of Tuberculous Infection in Skin. S. Löfgren. —p. 245.
Special Type of "Rheumatic" Disease. J. E. Holst and Esther Johansen. —p. 258.
Case of Leukemic Myelomatosis (Plasma Cell Leukemia). A. Søeborg-Ohlsen and O. P. Nielsen.—p. 271.

Acetylcholine Injections in Normal Persons.—Segers and his co-workers report the results of 250 intravenous injections of 40 persons with 2 per cent acetylcholine solution, most of whom did not suffer with any cardiovascular disorder. The changes in the heart action which are produced in man by the rapid injection of acetylcholine resemble those occurring in animals, but the duration of these changes in man is more brief and consequently they are better tolerated. The slowing of the pulse rate is associated with a considerable fall in the blood pressure. Electrocardiographic recordings demonstrated an inhibition of the superior automatic centers, decrease in amplitude or disappearance of the P wave, lengthening of the auriculoventricular conduction time and in certain cases a shortening of the QT interval, occasionally accompanied by a lowering of the ST segment. The inhibitory effects, whose duration as a rule does not exceed half a minute, may be produced by doses of acetylcholine which vary considerably in different persons. The particular tolerance of each patient must be ascertained with increasing doses of acetylcholine; the injection must be repeated at five minute intervals by adding 0.02 Gm. to the preceding dose. The degree of tolerance of each person can be appreciated by the slowing of the pulse; this tolerance is constant and does not change from day to day. The brief cardioinhibitory phase which occurs as the result of the acetylcholine injection is followed by a phase of quickening of the pulse, which continues for about one minute and during which frequent extrasystoles arise. A brief attack of auricular flutter or of auricular fibrillation occurred in exceptional cases after an injection of more than 0.1 Gm.

Examination of Tongue.—*Frantzell and his associates* carried out a clinical and photographic investigation of tongues from 200 normal persons and 1,300 patients with various diseases in the medical and surgical clinics of the University of Uppsala. A special photographic method for the examination of the tongues was used. The patient presses the tongue against a glass slide so that the surface of the tongue lies in one plane, which is required for a sharp picture. Smooth tongue was the most common pathologic change and was present in 102 patients. An attempt was made to analyze the causes of smooth tongue. It was found that the condition could be attributed to iron deficiency in 27 cases. *Other diseases in which smooth tongue* was comparatively common were pneumonia, decompensated heart disease and malignant tumors. In 31 of the 102 cases no relationship was found between the disease and the smooth tongue. In pernicious anemia a smooth tongue is a common finding, and this condition was noted in 131 patients prior to treatment. In iron deficiency and in pernicious anemia cure of the atrophy of the papillae could nearly always be obtained with specific therapy. Only 14 of 135 cases of pernicious anemia were refractory to liver treatment. In 4 of these iron or yeast caused a rapid improvement. Four cases of paralysis agitans presented a smooth tongue; in 1 of these cases treatment with pyridoxine injections was practiced but proved ineffective. The effect of a dental prosthesis on the surface of the tongue was studied. Fourteen per cent of the men and 47 per cent of the women had an upper prosthesis. The presence of a prosthesis did not materially interfere with the effect of therapy. The prosthesis is not to be considered as the chief causative factor of the atrophy of the papillae, but the possibility that a prosthesis worn for many years may facilitate the appearance of this atrophy must be considered. A proposed hypothesis is that the lingual papillae are sensitive to a lack of oxygen and do not regenerate in the normal way if the oxygen supply is impaired —lack of iron, lack of oxygen, lack of riboflavin or lack of nicotinic acid. If this concept is correct, the surface of the tongue may act as an important index of the degree of hydration of the body and as a mirror of the intracellular oxidative processes.

Nordisk Medicin, Gothenburg

25:1-52 (Jan. 5) 1945

Rhinitis. H. Malmros.—p. 1.
Tests of Pancreatic Function in Chronic Disturbances of Pancreas. S. G. Sjöberg.—p. 2.

Hospitalstidende

*Liponecrosis of Breast: 3 Cases. J. Dalsgaard.—p. 5.

Hygiea

Reliability of Citric Acid Test in Diagnosis of Hepatic Disorders. N. Alwall.—p. 23.
Case of Congenital Myxedema. B. H. Hesselman.—p. 26.

Liponecrosis of Breast.—Dalsgaard says that in this disease trauma plays a greater part than in cancer of the breast. The boundaries are less well defined and the growth is usually more mobile. Macroscopically the whitish yellow areas are less irregular in form and do not radiate from the center, as is often the case in cancer of the breast. There is not the tendency to concavity of the cut surface or to development of pinkish transparent bands, as in scirrhus. Excision was done in 3 cases of liponecrosis of the breast. The clinical diagnosis was confirmed microscopically. In 1 case, with preceding trauma, there had not been a recurrence after three years. In the second, with processes in both breasts, one of which was removed, recurrence was not seen after five years and the unremoved tumor had disappeared. The third case was not followed up.

25:177-236 (Feb. 2) 1945

Hospitalstidende

*Terminal Ileitis. Review and 24 Cases. I. Andersen.—p. 177.
Crural Herniotomy with Description of Plastic Method of Closing Crural Canal. A. Als-Nielsen.—p. 183.
Morel-Lavallée's Traumatic Separation of Skin and Subjacent Layers. J. V. Thorberg.—p. 189.
Investigations on Reaction of Normal Organism to Injection of Colloids in Small Doses. S. Selsø.—p. 192.
Natural Function of Heparin in Animal Organism. P. Astrup.—p. 195.
Two Cases of More Unusual Diseases of Ureter. K. Østerbye.—p. 197.

Hygiea

Ileac Invagination—Meckel's Diverticulum. L. Hallström.—p. 201.
Case of Pancoast's Symptom in Initial Tuberculosis. S. Hansson. —p. 203.

Terminal Ileitis.—In the acute cases of terminal ileitis the affected intestine is mobile and exhibits hyperemia and edema. The subchronic processes often develop insidiously without an acute initial stage and resemble ulcerative colitis; there may be a combination of acute and chronic changes. The patients may be treated for various intestinal disorders without permanent effect. The transition from the second or colitis stage to the third or stenotic and the fourth or fistulous stage progresses steadily. Diagnosis may be difficult in the subchronic stage but can be made if the condition is borne in mind. Laparotomy is indicated. Prognosis after radical intervention is good. In chronic stenotic cases resection is indicated, but sometimes a shunting operation must suffice. If fistulas are present, radical operation is called for. Of the 24 cases treated since 1938, 13 were acute and were treated operatively, chiefly on the suspicion of acute appendicitis. Follow-up of 7 patients did not indicate persisting disorder. Of the 7 patients with subchronic ileitis, 5 diagnosed roentgenologically were not operated on because of their age; 2 were operated on during a mild attack diagnosed as acute appendicitis. In 1 of the 3 cases of stenotic ileitis resection of the ileum gave good results; in the second, with ileocecal resection and ileocolostomy, death occurred from operative shock; in the third, side-tracking was done. The last case presented recurring abscesses and fistulas which necessitated ileocecal resection. The abscesses and fistulas persist and the prognosis is doubtful.

25:237-286 (Feb. 9) 1945. Partial Index

Hospitalstidende

Symptomatology in Retroflexion of Uterus and Lines of Treatment. P. N. Damm.—p. 237.
Relation of Upper Urinary Tract After Transurethral Resection. J. C. Christoffersen.—p. 241.
Postoperative Gastrocutaneous Fistulas. V. Aalkjaer.—p. 246.
Two Accessory Bones, Os Subtibiale and Os Subfibulare, in Relation to Malleolar Fractures. D. Trolle.—p. 247.
Clinical Determination of Plasma Protein by Aid of Gradient Method. E. Gudiksen.—p. 249.
Indications for Sterilization of Feebleminded. P. A. Schwalbe-Hansen. —p. 252.
Abdominal Symptoms in Infectious Mononucleosis. S. Thomsen.—p. 254.

Finska Läkaresällskapets Handlingar

Experiences in Thoracoplasty in Mjölbollstad Sanatorium. A. P. Heikel. —p. 260.
Occurrence of Night Blindness and Vitamin A Deficiency in Different Disorders. C. E. Nylund.—p. 266.

Hygiea

*Behavior in Pregnancy of Women Heterozygous with Respect to Diabetes Insipidus. H. Forssman.—p. 271.
Treatment of Adenosarcoma of Kidney (Wilms's Tumor). S. Berglund. —p. 276.
Suboxemia Tests in Injuries to Brain Stem After Carbon Monoxide Poisoning. H. Nyman.—p. 278.

Pregnancy in Women Heterozygous with Respect to Diabetes Insipidus.—Forssman studied three families with hereditary diabetes insipidus. Of 25 living women known to him who are heterozygous with regard to the disease, 10 examined to date show an insufficient urine concentration, ascribed to the tendency to diabetes insipidus. In women with this characteristic a pathologic increase in diuresis may appear in the terminal period of pregnancy. The symptoms disappear, though not completely, on delivery, to reappear, usually intensified, in the next pregnancy. After several pregnancies a mild diabetes insipidus becomes chronic. A parallelism is seen between this phenomenon and the change in the anterior lobe of the pituitary during pregnancy. The increased secretion of urine in certain women toward the end of pregnancy is believed to be due to intensification of the diuretic function of the lobe. The genetic defect in compensatory regulation causes the augmentation of the diuresis to appear in increased form in women heterozygous with respect to diabetes insipidus and constitutes diabetes insipidus of pregnancy.

25:287-338 (Feb. 16) 1945. Partial Index

Problem of Otosclerosis. G. Holmgren.—p. 287.
Surgical Treatment of Hyperinsulinism. E. Dahl-Iversen.—p. 290.

Hospitalstidende

Prostatic Fibrosis. E. Bandier.—p. 295.
*Postoperative Gastritis. T. Christiansen.—p. 300.
Acidosis in Acute Purulent Otitis Media in Infants. E. Kirk.—p. 309.
Treatment of Tendinous Paronychia with Immobilizing Plaster Bandage. N. F. Gregersen.—p. 313.
Spontaneous Closing of Gastroenterostomy in Hourglass Stomach. M. Olesen.—p. 315.

Hygiea

Therapy of Epilepsy. R. Eeg-Olofsson.—p. 317.
Fantom Experiences in Transverse Lesion of Spinal Cord. B. Cronholm.—p. 319.

Postoperative Gastritis.—According to Christiansen, postoperative gastritis is characterized by polymorphism. There are superficial, hypertrophic, erosive, atrophic or ulcerous elements. The condition develops independently of free hydrochloric acid or the stoma being able to attain rhythmic contraction. If objective improvement occurs, it affects only the erosive and ulcerative elements; the atrophic and hypertrophic changes appear irreversible. Effective therapy is not known. The most helpful treatment is perhaps a combination of ulcer diet and gastric lavage, but subjective improvement is not always accompanied by objective improvement, and in spite of improvement the gastritis may progress. Postoperative gastritis must be considered one of the gravest disorders of the stomach. The various types are illustrated by 9 cases.

Book Notices

All About Feeding Children. By Milton J. E. Senn, M.D., Associate Attending Pediatrician, New York Hospital, New York, and Phyllis Krafft Newill. Cloth. Price, $2.50. Pp. 269. Garden City, New York: Doubleday, Doran & Company, Inc., 1944.

This book contains not all but what the mother needs to know about what to feed children. It is an authoritative manual on the planning and preparation of menus for children from birth to the age of 12 years. The sections on infant feeding and special formula preparation are excellent. The authors take into consideration the varying nutritional requirements of children as they grow. There are welcome suggestions for lunch boxes and party refreshments and meals for children of all ages. Sufficient discussion of nutrition and the properties of the individual foods is included to enable the mother to select her own menus wisely. All of this fine advice is apt to be discredited by the reader because of the obvious ultra conservatism of the authors in advising "if possible" to hold off candy and chocolate milk until the age of 3, malted milk until the fifth year and pickles, radishes, cucumbers and green pepper until the tenth or twelfth year.

The causes and solutions of feeding problems could fill a separate book. The parents of children who present feeding problems require a thorough understanding of what may be involved in order to cope with such problems successfully. It is important that the parents see the feeding problem in relation to the whole personality and environment of the child. Here emphasis is placed too much on mealtime behavior. Since this is supposed to be a comprehensive book, it would be better to omit this important subject entirely than to give it the sketchy treatment it receives.

Miastenia Grave. Por Carlos Virgilio Savoy. Tése de concurso à docência livre de clínica neurologica na Faculdade de medicina da Universidade de S. Paulo. Paper. Pp. 156, with 12 illustrations. São Paulo, 1945.

Since the work of Walker in 1934, when the effects of neostigmine (prostigmine) on the symptoms of myasthenia gravis were reported, there has been growing interest in this disease and considerable research has been undertaken both in the clinic and in the laboratory. The results are now appearing in the medical literature. The book under review is the second monograph on the disease published since 1944. Both emanate from South America. The first, by A. R. Goni, contains histories of 13 cases observed in Buenos Aires from 1937 to 1944. The book by Savoy reports observations on 8 cases observed at São Paulo, Brazil, and, in the form of a thesis, the history of myasthenia gravis is reviewed and recognition taken of the work done particularly since 1934 in the United States and elsewhere. The monograph is a careful and extensive report on our knowledge of the disease up to the present time, and, except for a few omissions, most of the recent investigations are reported. There are illustrations of barium retention in the pharynx, pneumograms showing the effect of neostigmine, ergograms and photographs of a patient with associated and adiposogenital syndrome. The book will be of particular interest to neurologists but should appeal to the medical profession in general, for it deals with a disease now widely recognized and amenable to special supportive treatment with neostigmine and other drugs.

Trauma of the Central Nervous System. Proceedings of the Association December 17 and 18, 1943, New York. Editorial Board: Jefferson Browder, M.D., Chairman, Abraham Max Rabiner, M.D., and Fred A. Mettler, M.D., Ph.D. Research Publications, Association for Research in Nervous and Mental Disease, Volume XXIV. Cloth. Price, $8. Pp. 679, with 243 illustrations. Baltimore: Williams & Wilkins Company, 1945.

This publication contains the proceedings of the Association for Research in Nervous and Mental Disease which took place on Dec. 17-18, 1943. Forty-five investigators or authorities in the fields of neurology, neuropathology, neuropsychiatry or neurosurgery have contributed. There is some overlapping between certain of the chapters, but this is not serious as an equivalent gain results from the expression of the points of view of qualified persons about several borderline problems. This book is a creditable addition to the lengthening list of research publications in nervous and mental disease which have been appearing since 1920.

Das Herz beim Scharlach. Von Privat-Dozent Dr. med. Bernhard Steinmann, Sekundärarzt der Medizinischen Universitätsklinik, Bern. Cloth. Price, 12.80 Swiss francs. Pp. 149, with 21 illustrations. Berne: Hans Huber, 1945.

This monograph is based on clinical, electrocardiographic and radiologic observations on the heart in 350 cases of scarlet fever. The results are analyzed in the light of the literature on cardiac disturbances in scarlet fever and on their relations particularly to rheumatic fever and to focal infections. By means of electrocardiographic studies an early myocarditis without definite clinical signs is separated from a more serious carditis in the second to the fourth week of the attack. This late carditis occurs especially in older children. The intramuscular injection of Dick toxin in rabbits was found to cause disturbances of myocardial function similar to those in early scarlatinal myocarditis. The relations of late myocarditis to different factors and complications are discussed, particularly its similarities to rheumatic carditis. The structural features, the streptococcus etiology and the nosologic relations of the two infections as well as the role of allergy in the genesis of the rheumatic processes are considered. The conclusion is reached that scarlatinal and rheumatic carditis are not identical. The book is an important contribution to the study of the disturbances of the heart in scarlet fever and of related problems.

Annual Review of Biochemistry. James Murray Luck, Editor. James H. C. Smith, Associate Editor. Volume XIV. Cloth. Pp. 856. Stanford University P. O., California: Annual Reviews, Inc., 1945.

This volume is in continuation of an excellent series of reviews which are of valuc in aiding the biologic scientist to keep abreast of rapid changes and advances. The subject matter is presented in chapters on biologic oxidations and reductions; enzymes that hydrolyze the carbon-nitrogen bond; proteinases, peptidases and amidases; nonproteolytic, nonoxidative enzymes; the chemistry of the carbohydrates, of the lipids, of the amino acids and proteins, of the nucleic acids and nucleoproteins, of the steroids, of the hormones, of the triterpenes and of antibiotic substances other than penicillin; x-ray studies on compounds of biochemical interest; the chemistry and metabolism of the compounds of sulfur, of the compounds of phosphorus and of bacteria; carbohydrate, fat and mineral metabolism; the metabolism of proteins and amino acids; nutrition; water soluble vitamins; fat soluble vitamins; animal pigments; detoxication mechanisms; the biochemistry or malignant tissues; nitrogenous constituents of plants; biologic nitrogen fixation, and the mineral nutrition of plants.

How a Baby Grows: A Story in Pictures. By Arnold Gesell, M.D., Director of the Clinic of Child Development, Yale University, New Haven, Conn. Over 800 Photographs Arranged and Interpreted with the Assistance of Katherine Gesell Walden, A.B. Cloth. Price, $2. Pp. 83. New York & London: Harper & Brothers, 1945.

The hundreds of photographs in this book show the growing mind and developing personality of the child as revealed in his early activities. The pictures are uniquely arranged to portray evidences of growth which shape the baby's behavior as he advances. Gradual changes and their portent are clearly demonstrated by interval pictures of the same subject. Each view is so typical that one can match it with a personal recollection. The text is brief but amply explanatory. The author sums up his revelations with principles rather than rules for guidance. His constant plea, reiterated in his closing word to parents, is to treat each child as an individual and to help him develop his own personality and potentialities. Parents will enjoy this book and find it helpful to them in understanding and guiding their children. It shows, more vividly than any written description, when, where and how guidance and discipline should begin.

Quelques vérités premières (ou soi-disant telles) sur la transfusion sanguine. Par Arnault Tzanck et Marcel Bessis. Paper. Price, 80 fr. Pp. 66. Paris: Masson & Cie, 1945.

This is the most recent number in a collection of similar booklets on various topics of medical interest. It covers the practical aspects of blood grouping and transfusion under different conditions. Its distinctive feature is a statement of the essential facts concerning these matters in plain, terse, well worded maxims. The principles and methods appear to be practically the same as ours.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

MULTIPLE SCLEROSIS

To the Editor:—Is there anything new in the treatment of multiple sclerosis? Has any work been done on using penicillin in this condition? A man aged 35, who has been to several clinics, has been diagnosed as having this condition. His illness dates back eleven years. He is now complaining chiefly of the spasticity of the lower extremities, which, as he describes it, causes a feeling of severe pull on the lower spine or back. This is present only when standing; when he is lying down the legs feel free and do not present signs of spasticity and are freely movable. Does climate have any effect on multiple sclerosis? Our New England fall and winter elicit more complaints. I cannot help but feel that our cold and damp weather is bad.

Theodore P. Murphy, M.D., Montpelier, Vt.

Answer.—There would seem to be some reasonable doubt with regard to the diagnosis of the case described. Spastic paralysis of the legs is the most common defect in multiple sclerosis, for impingement of a sclerotic plaque on the corticospinal or pyramidal tracts, extending from the motor cortex to the caudal end of the spinal cord, is almost a certainty, especially if the illness has lasted eleven years. Spasticity, however, is not usually accompanied by "a feeling of severe pull on the lower spine or back" and would never be absent when lying down and present only when standing. Such a change in posture would not affect the deep leg reflexes, which must, in spastic states, be exaggerated, often with the addition of ankle clonus and positive Babinski signs. Without such reflex changes, in part or total, spasticity cannot be shown in the leg muscles. The word "spasticity," moreover, is frequently used loosely, but there is a long standing connotation which limits the use of the word, in describing one type of muscular weakness, to states resulting from a release of the normal inhibition exerted by the corticospinal neuron. Such a condition is due to interference with the impulses passing down this long and important pathway of the central nervous system.

The effect of penicillin on multiple sclerosis is at present undetermined. A few patients may have received it, but reports on its use are not part of the current literature. For a demyelinating disease, such as multiple sclerosis, penicillin treatment would not appear to be effective and, as has often been pointed out, few diseases offer a more hazardous task of therapeutic evaluation than does multiple sclerosis, with its sharp swings from remission to relapse without obvious cause.

Some authors (Freeman) have favored a mild climate for patients with multiple sclerosis. Certainly upper respiratory infections make the disease more difficult to bear. That they actually make the disease worse is less certain. Rest, preferably in bed, during an acute exacerbation is the treatment of choice until some more specific remedy is at hand. Bed rest appears to be often neglected. Vitamins may be added, but their value is uncertain.

Morel has continued the use of magnesium ferriscorbone, a combination of ascorbic acid and iron compound, in the treatment of multiple sclerosis. He reported his initial experiments in 1936, and another report was published in 1942. The treatment is based on the assumption that magnesium may inhibit the destruction of the phospholipids in the myelin and the nucleoproteins in the gray substance. A similar substance with a sodium radical has been used in the treatment of acetonuria in diabetes. Morel gave the drug by intravenous injections. This paper reports observations on 1 case and therefore must be considered as a preliminary report of an unconfirmed form of treatment.

Chavany summarizes the treatment of multiple sclerosis and points out that there is no specific treatment for this disease. The cause is not known; the pathology is not clearly understood; the reason for progression by spontaneous remissions and relapses is not adequately explained. Many drugs are in current use, including the intravenous use of sodium salicylate as advocated by Foix and Levy, mercuric cyanide intravenously, multiple vitamins and the method of fever treatment based on injection of vaccines as advocated by Vincent and Krebs. In each case the results are inconclusive. A combination of fever therapy and vitamins appears to give the best result, but Chavany feels that no form of treatment advocated is sufficiently stabilized to be widely accepted.

Another form of treatment is the use of blood serum obtained from a patient in a stage of remission. Advocated by Laignel-Lavastine and Korressios in 1938, it has been repeatedly tried since that date. In the hands of Carballo and his associates in Madrid the results were equivocal.

Benedek and Horanyi-Hechst treated a severe case of multiple sclerosis in which many symptoms had existed for at least five years, including transient attacks of blindness, urinary incontinence, speech difficulty and particularly pathologic laughing. Twenty-five cc. of air instilled into the ventricles resulted in immediate relief of laughing which lasted for a two months period of observation. On theoretical grounds it was felt that the instillation of air changed the vascular supply of the hypothalamic structures surrounding the third ventricle, the presumed site of pathologic laughing in association with the cortex, thalamus and brain stem.

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ASPHYXIA OF THE NEWBORN

To the Editor:—How is carbon dioxide or plain oxygen used in asphyxia of the newborn? What is the value of nikethamide and other stimulants? Our interns come from various schools with ideas as to what to do and feel that we are old fashioned in using carbon dioxide when the babies are already cyanotic.

M.D., Kansas.

Answer.—The treatment of asphyxia of the newborn, in the absence of anemia, should have three objectives. The first objective is to make certain that the airway is not obstructed. The second objective is to oxygenate the blood in order to support the heart and to prevent anoxic injury of the cells of the cerebral cortex. The third objective is to initiate spontaneous and adequate respiratory movements. The more quickly the first two objectives are attained by any harmless method, the better for the patient. If the blood can be kept oxygenated by artificial means, the initiation of spontaneous and adequate respiratory movements is of secondary importance from the point of view of the most immediate vital need, namely oxygenated blood.

What are the reasons for mixing carbon dioxide with oxygen for the treatment of asphyxia? First, carbon dioxide is a respiratory stimulant: this is agreed to by every one. Pronounced anoxia depresses the respiratory center, and hence it is argued that carbon dioxide should be used to stimulate the depressed respiratory center. Second, carbon dioxide increases the depth of inspiration and relieves or tends to relieve atelectasis and to prevent the development of pneumonia. The entrance of air or gas into the pulmonary alveoli of the newborn changes the epithelium from a cylindric to a flattened form. It would appear that several deep inspirations would open more alveoli and flatten their epithelium than many shallow inspirations. It has not been established, however, that a deep inspiration excited by the inhalation of carbon dioxide is more effective and less harmful potentially than mechanical insufflation with 100 per cent oxygen. Third, carbon dioxide is claimed to increase venous return to the right side of the heart by increasing venopressor tone and thus to improve the circulation. This claim has not been established, though a deep inspiration does favor venous return. On the contrary, it has been claimed that in anoxemia due to obstruction and depression of the respiratory center there is already an excess of carbon dioxide in the blood and tissues and that the addition of more is irrational and likely to produce injury and "overstrain" the heart. This claim has not been clearly established. Fourth, carbon dioxide in oxygen increases the rate of dissociation of carbon monoxide from hemoglobin in carbon monoxide asphyxia. This is quite well established. Whether 7 per cent carbogen (7 per cent carbon dioxide plus 93 per cent oxygen) is superior to 100 per cent oxygen in regard to the end results (survivals and neurologic sequelae) of the treatment of carbon monoxide asphyxia is at present debatable.

Thus there is no argument regarding the advisability of the use of 100 per cent oxygen in asphyxia neonatorum. It should be used with manual or mechanical artificial respiration. If the blood becomes red the primary objective has been attained; then the condition of the respiratory center can be considered. If 100 per cent oxygen is given by endotracheal intubation under intermittent pressure and the blood does not become red, a venoarterial shunt or massive pneumonia is present. If after the blood has been fully oxygenated for several minutes respiration does not occur spontaneously when artificial respiration is stopped and cyanosis recurs, then the presence of cerebral trauma or deep anesthesia of the respiratory center should be suspected. Excessive carbon dioxide is removed from the blood and tissues after complete oxygenation of the blood has been maintained for five or ten minutes. At this point 5 or 7 per cent carbogen can be administered for a minute or two. If this procedure is followed, all of the criticisms previously mentioned can be avoided except the report that carbon dioxide in oxygen increases intracranial pressure (W. F. Von Oettingen, Public Health Bull. 290).

The differences of opinion in the obstetric services in our sixty-three medical schools regarding the use of carbon dioxide and stimulants in asphyxia neonatorum have been summarized by Dr. P. J. Flagg in his book "The Art of Resuscitation" (New York, Reinhold Publishing Corporation, 1944). Ten of the sixty-three voiced objection to the use of carbon dioxide; the remainder either approved or did not voice objection. Of fourteen services which wrote of their experience with drugs, nine were favorable and five were unfavorable to the use of alpha lobeline or nikethamide.

NERVE CRUSHING PROCEDURE FOR POLIOMYELITIS

To the Editor:—The Department of Health, Troy, Ohio, recently received an inquiry concerning the Billig-van Harreveld procedure for treatment of residual paralysis from poliomyelitis. Our department, as well as our local chapter of the National Foundation for Infantile Paralysis, would like the following information: 1. What does this treatment consist of, and how effective is it? 2. Is it an ethical and recognized procedure? 3. Is the institution offering it an ethical, reputable and recognized institution? 4. Would we be justified in referring cases to this institution and recommending payment for this type of treatment from our local poliomyelitis foundation?

Harry Wain, M.D., Troy, Ohio.

ANSWER.—1. The Billig-van Harreveld procedure consists of a manual operation to interrupt the remaining intact motor nerve fibers of a paretic muscle. Its success supposedly depends on the tendency of such nerves to branch during regeneration, thereby providing an increase in the number of nerve fibrils available for muscle cells. The operative procedure is followed by intensive physical therapy and muscle reeducation. The procedure is commonly known as the "nerve crushing" operation. There is of course no assurance that improvement will result and no way of anticipating to what extent such improvement as does occur may develop. The reported results in over 800 cases appear to be hopeful.

2 and 3. This procedure is still in the experimental stage. It is carried out by well recognized, qualified surgeons at the St. Luke's and Children's Medical Center, Philadelphia, in cooperation with the University of Pennsylvania Department of Physical Medicine. These institutions are, of course, ethical, reputable and of high medical standing.

4. Since this procedure is carried out by duly licensed physicians in accredited hospitals there is no reason why cases should not be referred for the treatment. The local chapter of the National Foundation for Infantile Paralysis should determine through its own advisers the method of payment.

HISTAMINE FOR MIGRAINE

To the Editor:—I am anxious to obtain some information on the use of histamine in the treatment of migraine, with detailed method of use.

George B. Ribble, Comdr. (MC), Glenview, Ill.

ANSWER.—A specific cure for migraine has not yet been announced. There is evidence to indicate that histamine may be of value in alleviating the syndrome to some extent for variable periods of time. Not all patients who have migraine respond to histamine, and, of those who do, not all derive the same degree of benefit. It would appear as if the effect of histamine on the migrainous mechanism is a relatively transient one. It is of little or no value in aborting acute episodes of migraine, and it is used chiefly with the idea of preventing further attacks.

Histamine can be administered in desensitizing doses by the subcutaneous route or by the intravenous route. A combination of the two procedures seems more effective in preventing future attacks than does either procedure when carried out alone.

More work will have to be done in this field before definite conclusions can be drawn with reference to histamine in the treatment of migraine.

The nervous tension state is often so intermingled with the migraine problem that it is difficult to determine whether one is dealing with migraine per se or not. Consequently it is not easy to evaluate a therapeutic agent which is used with the idea either of aborting acute attacks or of preventing future attacks.

The following is a partial list of publications referring to the treatment of migraine with histamine:

Butler, Stuyvesant, and Thomas, W. A.: Intravenous Histamine in the Treatment of Migraine: Preliminary Observations, THE JOURNAL, May 19, 1945, p. 173.

Horton, B. T.: The Use of Histamine in the Treatment of Specific Types of Headaches, *ibid.*, Feb. 1, 1941, p. 377.

Horton, B. T.: Symposium: Head and Face Pain; Medicine, *Tr. Am. Acad. Ophth.* **49**: 23 (Sept.-Oct.) 1944.

Levin, I. A.: Migraine and Histamine Headaches, *J. Louisiana State Univ. School Med.* **3**: 10 (Aug.) 1942.

Lieder, L. E.: Histaminic Cephalalgia and Migraine, *Ann. Int. Med.* **20**: 752 (May) 1944.

PSEUDOTUBERCULOSIS IN LABORATORY ANIMALS

To the Editor:—Some of my guinea pigs are dying from a condition which is generally called pseudotuberculosis. How can I get rid of this epidemic without destroying all the animals and starting with new animals after a thorough disinfection?

Stephan Epstein, M.D., Marshfield, Wis.

ANSWER.—Pseudotuberculosis is a widespread infectious disease of rabbits and guinea pigs caused by a gram negative, nonmotile, short or coccoid form of bacillus belonging to the hemorrhagic septicemia group. The micro-organism is most often referred to as Bacillus pseudotuberculosis rodentium of Pfeiffer or of Nocard and Preisz. The bacillus is readily stained by aniline dyes and its body often takes up the stain unequally. Serologically it resembles Pasteurella pestis most closely, from which it is often differentiated with difficulty. Cows, horses, monkeys and even man also may be affected. The bacteria are widespread in nature and are encountered in the soil and elsewhere. They are usually saprophytic and only under certain unknown conditions of the host do they become pathogenic. The natural mode of infection is by way of the alimentary tract, as evidenced by the common occurrence of lesions in the intestine and the mesenteric lymph nodes. Affected animals eliminate the bacteria in the feces, and animals can be artificially infected by ingestion. The disease is characterized by the appearance of numerous yellowish nodules in various organs. The appendix and ileocecal junction of rabbits are a frequent site of localization. The mesenteric nodes, the liver and the spleen are often affected. The lung is less often involved. Histologically the lesions consist of circumscribed nodules of mononuclears intermixed with a great many polymorphonuclears. The center of the lesion usually is occupied by necrotic cells and nuclear débris. On the periphery of the nodule there is a considerable proliferation of granulation tissue. The center of such encapsulated lesions is often transformed into a thin pus, where the bacilli may be found in small clumps. Epithelioid and giant cells are rare, and in this respect the lesions differ most sharply from those of true tuberculosis; nor is calcification encountered in pseudotuberculosis. Agglutinins appear in infected animals. Recently Ramon has obtained a toxin from this bacillus which is lethal to rabbits. He has also prepared a toxoid. He demonstrated that animals immunized with this toxoid or with solution of formaldehyde and heat-treated bacteria, by repeated subcutaneous inoculation, can be protected against virulent bacteria fatal for normal rabbits. There is as yet no confirmation of Ramon's studies.

For the present, the prevention of the disease must depend chiefly on prophylaxis. It is most important that animals be protected from contact with their own feces. This may be achieved by frequent sterilization of the cages with hot steam, the installation of wire mesh bottoms in the cages where the animals are housed and the provision of drinking bottles so arranged that the water cannot become contaminated by the excreta of the animals. These hygienic measures, together with the maintenance of an adequate diet, will largely eliminate the infection.

SUFFOCATION AND BLOOD CARBON MONOXIDE

To the Editor:—To the query about "Suffocation and Blood Carbon Monoxide" (The Journal, Dec. 29, 1945, p. 1295) I would like to add the following: It is known that carbon monoxide hemoglobin can be found in exhumed bodies. I reported a case in which I could discover carbon monoxide hemoglobin in the bloody transudate which was present in the chest cavity of a man who had died from acute carbon monoxide poisoning, three months after his death. The body had not been embalmed, however. The case is reported as "Beobachtungen bei Exhumierungen" (observations at exhumations) in the *Aerztliche Sachverständigen-Zeitung* 34: 241 (Aug. 15) 1928. This [illegible] and similar ones prove that carbon monoxide hemoglobin disappears slowly from the body, probably only when the blood and tissues are destroyed by advanced putrefaction and decomposi[illegible]

[illegible]rge S. Strassmann, M.D., Waltham, Mass.